Foreword

The Retail industry is still experiencing pressure on a global front but there are signs that things are improving. Retail figures are up in many countries and the expectations are that the year end of 2009 will still be under pressure but better than expected.

Academics and scholars will look forward to 2010 as a year where cases on what has happened and how it should have been handled will be debated on all levels. Not only will the focus be on the trade but also on the teaching. Material will be adapted, solutions presented to prevent similar situations from arising, caused and reasons sought and new suggestions made only to be reviewed again in future. There is nothing like change and turmoil to bring out the best in the retail structures and academic world so that we can debate and discuss all relevant issues.

In academia a renewed focus is on using all types of social media including face book, twitter, and others to reach the respective markets and to generate business in these difficult times. The value and impact of these media has however not been tried and tested and there are differing opinions of the effectiveness of these media. Scientific articles debating these issues and other learning technologies will increasingly become more important in future and journals such as the International Retail and Marketing review aim to play a leading role in these debates in future. In this edition some learning technologies were tested in academia as a means of teaching marketing and retail students and the results are refreshing and opens the door for more research in this area.

As is the custom The International Retail and Marketing Review aims to keep its readers up-to-date on trends by publishing thought provoking articles and research, as well as to present new perspectives from leading scholars and thinkers within the field. We have also added a new dimension ion the journal and that is the Review/Opinion section. The focus of this section is to have new marketing and retail texts reviewed by experts in academia and/or business as well as to garner opinions on any matter related to marketing and retail. It is thought that this will stimulate debate, discussion, and shared views on topical and controversial issues in the marketing and retail field.

We look forward to a stimulating and healthy debate from eminent scholars and business leaders worldwide, and we have been very fortunate to have a number of esteemed academics from all over the world on our editorial board. A number of new members have been added to the editorial team.

We wish all our members and readers a prosperous 2010 and we look forward to the first edition for 2010 in April/May.

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Prof. Michael C. Cant

Professor Michael Cant is the Head of Marketing and Retail Department at the University of South Africa (Unisa). In this position, his responsibility includes the development of staff; course design; the development of new modules/courses and degrees; and liaison with the business community to ensure that all qualifications are in line with the specific needs of the business world. He acts as promoter for both master's and doctoral students. He is the chairperson of the Departmental Marketing Committee of Unisa, as well as a member of the Marketing Committee of the College of Economic and Management Sciences.

In 1999 a major retailer in Africa, *MassDiscounters*, sponsored a substantial amount of funds for the development of a BCom degree in Retail Management. This sponsorship has been utilised for research in the field of retailing and for course development, and to fund the Chair in Retail Management of which Prof. Cant is the incumbent. He secured these funds largely due to the fact that he and his staff members had been able to assist MassDisounters, through the academic programmes offered by the Centre for Business Management, to train their employees and develop their own in-house programmes.

Unisa presented a merit award for research to Prof. Cant in 1998 and again in 2002. His research outputs include contract research and contributions to prescribed textbooks, either as editor or as an author. His research projects, which deal with student perceptions of certain academic matters, their attitudes towards specific components for the curricula, their needs, and so on, have been completed. He has also published a number of research articles in both local and international academic journals. Prof. Cant also serves on the board of the Journal of Retail and Consumer Services.

Using the conceptual model of service quality to map gaps in perceived service quality in a banking sector and hence make recommendations for improvement

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ABSTRACT

Organisations are now confronted with endless challenges. Likewise, the banking industry faces deregulation, increasing competition and continuously evolving customer demands. In order to succeed, banks have to adopt proactive approaches to maintain standards of service delivery. This study evaluates quality of service at a major banking institution. A sample of 159 customers was drawn using convenience sampling. Data was collected using a questionnaire adapted from Servqual, the psychometric properties of which were statistically tested using factor analysis and Cronbach's Coefficient Alpha. Data was analysed using descriptive and inferential statistics. Based on the results, mapping was used to identify gaps and a framework was generated outlining the critical factors and recommendations for improving service quality.

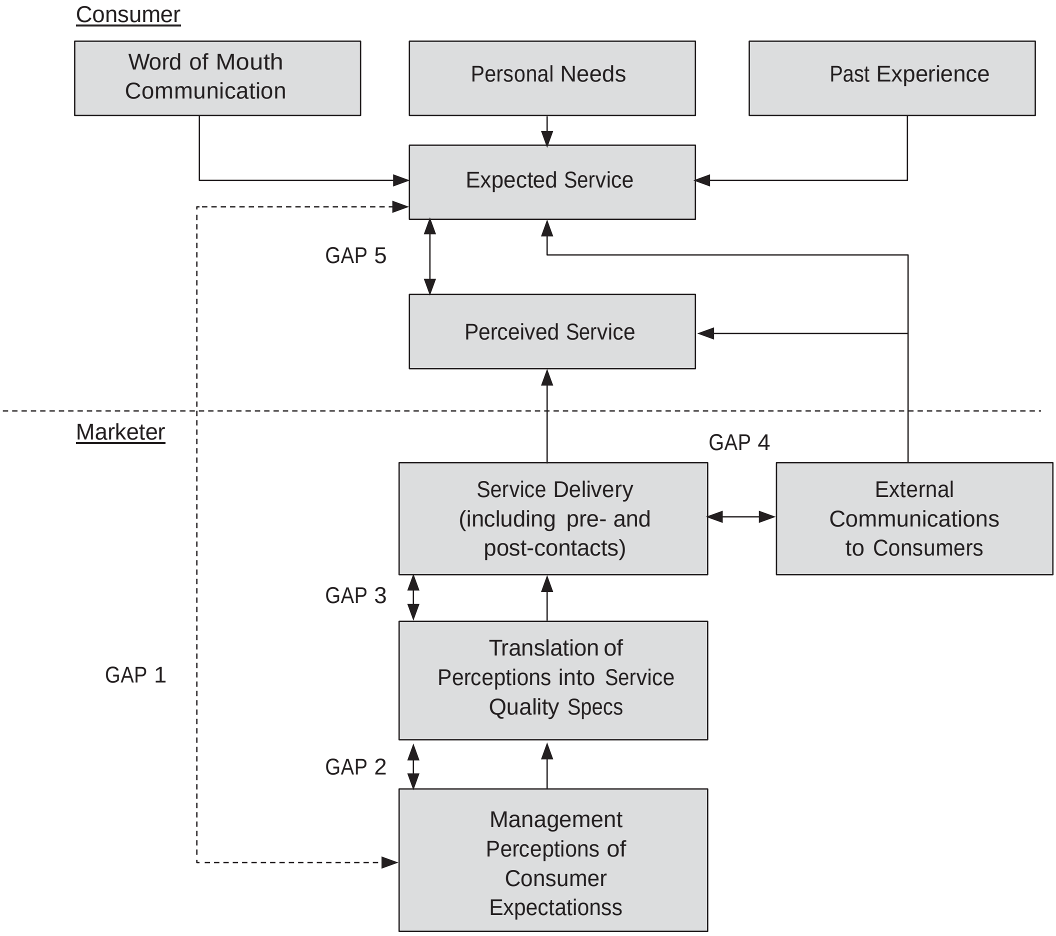
Keywords: Service quality, Servqual, reliability, responsiveness, competence, access, courtesy, communication, credibility, security, understanding/knowing the customer, tangibles.

In a dynamic and competitive environment, financial organisations are increasingly using service quality to differentiate their offerings from others in the market. Quality means fulfilling or exceeding customer expectations. Quality of service refers to how well a customer is being served, including the extent to which the service provider assists the customer and the mannerism of the latter. In order to deliver a consistent set of satisfying experiences that ensures high quality, the entire organisation needs to be focused on the task and on quality and the system must be designed to support that mission (Gilbert & Parhizgari 2000). To achieve this and hence, ensure measurable benefits in profit, cost savings and market share, the organisation must be customer-oriented. Therefore, an understanding of the nature of service quality and how it is achieved in organisations has become a priority for research.

Parasuraman, Zeithaml and Berry (1988) conceptualised perceived service quality as a global judgement or overall evaluation, or attitude, relating to the superiority of the service. Customers are ideal for appraising how well employees have provided quality service because they are in a better position to observe employee performance than employees'supervisors (Bowen &Schneider 1988 cited in Frost & Kuman 2000).

Parasuraman et al. (1988) developed a 22-item instrument named Servqual based on the Gap Model, for measuring service quality. The instrument assesses customers' perceptions of quality by comparing their perceptions of the services received, across various service quality dimensions (Nel, Boshoff & Mels 1997). The service quality model (Figure 1) views service quality and service quality problems as existing between the customer and marketer. From the customer's point of view, service quality is the difference between what he/she expects and what he/she perceives to be receiving from the service provider. When the perceptions are greater than expectations, then perceived quality is very good; when they are equal, perceived quality is good; but if expectations exceed perceptions, the perceived quality will be less than satisfactory. It is thus, clear that judgements of high and low service quality depend on how customers perceive the actual service performance in the context of what they expect. This model also displays that gaps can exist between the service provider and the customer over expectations and perceptions of quality. The message for management is one of managing customer expectations as well as ensuring that what is promised in respect of quality is actually delivered.

Figure 1: A Conceptual Model of Service Quality


Consumer
Word of Mouth Communication
Personal Needs
Past Experience
Expected Service
GAP 5
Perceived Service
Marketer
GAP 4
Service Delivery (including pre- and post-contacts)
External Communications to Consumers
GAP 3
GAP 1
Translation of Perceptions into Service Quality Specs
GAP 2
Management Perceptions of Consumer Expectationss

Source: Parasuraman, A., Zeithaml, V.A. and Berry, L.L. (1985). A conceptual Model of Service Quality and its implications for future research. Journal of Marketing, 49, p. 44.

The Servqual model (Figure 1) pinpoints areas of potential shortfalls in service quality – areas where there could be discrepancies, or gaps, between customers' expectations and their perceptions. This model consists of five gaps (Parasuraman, Zeithaml & Berry 1985):

- *Gap 1* is between customer expectations and management's perception of these expectations.
- *Gap 2* is the difference between management's perception of customer expectations and the translation of those perceptions into service quality specifications.
- *Gap 3* is the difference between the service quality specifications and the delivery of those specifications to the customer.
- *Gap 4* is the difference between the service delivered to customers and the external communications about the service.
- *Gap 5* is the difference between customers' perceptions of an actual service experience and the customers' expectations of an ideal service.

Undoubtedly, perceived service quality and service encounter management tends to play a significant role in high contact industries (that is, high interaction between the customers and the service provider) such as banking institutions (Goldstein 2003). The banking sector is now, more than ever before, confronted with fundamental business challenges in a turbulent environment. As they face further deregulation, increasing competition from other financial institutions and continuously evolving customer demands for success and survival, banks have to adopt proactive approaches to maintain their standards of service delivery (Allred 2001). This study therefore, aims to evaluate service quality in the banking industry especially because the banks have traditionally long-term relationships with customers.

Parasuraman et al. (1985) proposed that ten dimensions assess customer perceptions of service quality, namely:

- *Access*: Samuels (2002) researched the cost of a loyal customer and observed that access is a fairly significant dimension. In a study on quality hospital care, the attribute of accessibility was considered to be a highly subjective attribute (Rhode Island Series on Health Care Quality 2002). He states that accessibility of care, the doctor patient relationship and the 'amenities of care' will greatly influence acceptability, legitimacy and equity.
- *Reliability*: When measuring the quality of an academic library, Nitecki (1996) found that reliability is the most important contributor to service quality and this result supported the findings of Zeithaml et al. (1990).
- *Credibility*: With respect to the study conducted by Gronlund et al. (2001) on the customers of Finnish Printing Companies, a very interesting finding of the relationship between price level and credibility as a selection criteria was revealed. If the customers of a company think that price is a very important selection criteria, they do not see the company's credibility as important. So in order to get a lower price, they are willing to compromise their credibility expectations.
- *Security*: Research conducted by Siu and Mou (1999) on the customers' service quality perceptions in internet banking as well as the impact of these perceptions on customer satisfaction and future consumption intentions, found that security had the strongest association with future consumption behaviour.
- *Understanding/knowing the customer*: A study on the Vehicle Certification Agency (VCA) which is an internationally recognised vehicle type approval authority and management system certification body in the UK, revealed that the dimension understanding the customers' needs at VCA scored the highest in terms of their study.

- *Responsiveness*: In a study undertaken by Zeithaml et al. (1990) a shared importance was noted between reliability and responsiveness.
- *Courtesy*: The study undertaken by Curry and Sinclair (2002) on assessing the quality of three different types of service (community rehabilitation team, the outpatient clinic and general practitioner service) of physiotherapy services revealed that the highest mean perception scores related to the staff being constantly courteous with patients and behaving in such a way so as to instill confidence in patients.
- *Competence*: Competence is a critical success factor, especially in the banking industry where people's hard earned savings reside.
- *Communication*: According to research conducted by Zeithaml et al. (1990), there are ten criteria which individuals use to rate the quality of the service which they received from professionals, including physicians. The investigation by Zeithaml et al. (1990) produced results that are surprising and have important implications for the health care industry. The results showed that patients liked and ranked the physicians the highest as they possess strong interpersonal skills. In terms of communication, it entailed the physicians actively listening to the patient, allowing the patient to respond to a question without interruption and adopting body language which demonstrates interest and attention.
- *Tangibles*: Nitecki (1996) and Zeithaml et al. (1990) found tangibles to be the least important dimension in determining service quality.

Parasuraman et al. (1988) later revised the Servqual instrument to include only five elements of service quality, namely, tangibles, reliability, responsiveness, assurance and empathy. From the ten criteria of the initial Servqual instrument, the first five criteria impact on "the quality of the outcome of the service experience" whilst the next five impact on "the quality of the inputs to the process to provide a solid foundation for the outputs" (Brassington & Pettitt 1997: 933). Hence in this study, all ten dimensions were evaluated because compositely they enable the customer to provide feedback on the entire service experience. This will enable the researcher to assess customer perceptions of service quality at a major banking institution, engage in mapping to identify gaps in service delivery and ultimately, make recommendations for improvements.

OBJECTIVES OF THE STUDY

The study aims to:

- Assess the perceptions of the clients towards the quality of service/product received at a major banking institution by evaluating the extent to which the critical components of quality service (reliability, responsiveness, competence, access, courtesy, communication, credibility, security, understanding/ knowing the customer and tangibles) are fulfilled.
- Evaluate whether gender and patronage (frequency of visit to the banking institution) are related to perceptions of the quality of service received at the major banking institution.
- Assess the perceived impact of the dimensions in determining service quality in the banking institution being studied.
- Identify gaps in service quality at the major banking institution using the conceptual model of service quality developed by Parasuraman et al. (1985).
- Generate a model/framework, based on the findings of the study, outlining the critical dimensions and recommendations for enhancing service quality.

The study therefore, hypothesizes that:

- The dimensions reflecting service quality (tangibles, reliability, responsiveness, competence, courtesy, credibility, security, access, communication and understanding/ knowing the customer) significantly relate to each other in determining service delivery.

- Clients varying in biographical or classification data (gender, frequency of visit to the bank) differ significantly in their perceptions of the dimensions determining service quality (tangibles, reliability, responsiveness, competence, courtesy, credibility, security, access, communication and understanding the customer) respectively.
- The dimensions determining service quality in the banking institution (tangibles, reliability, responsiveness, competence, courtesy, credibility, security, access, communication and understanding the customer) have varying levels of impact on service quality.

RESEARCH DESIGN

Participants/respondents

The population for the study consisted of customers from a branch of a major retail banking institution in KwaZulu-Natal. The latter was selected so as to capture and represent all the critical features of service quality that the customers might use as an indication in evaluating the quality of service delivered. The study was undertaken on a sample of 159 customers, drawn using convenience sampling (those who patronized the bank during the one month data collection period, were current customers and were willing to participate). The sample size was considered to be appropriate in order to get a sense of the perceived degree of service quality attained in the branch of the major banking institution and to highlight factors that customers perceive to be critical in determining service quality.

Measuring instrument

Data was collected through the use of personally administered questionnaires. The purpose of using this method was to give the customers sufficient time to think before responding to statements regarding the quality of service delivered at the branch of the major banking institution and to identify the factors that customers consider to be critical in the banking sector. The Servqual questionnaire developed by Zeithaml, Parasuraman and Berry (1990) was adapted for use in a financial institution setting, as defined in the descriptions of the dimensions below. It comprised of a series of closed-ended questions measured on a 1 to 5 point Likert Scale ranging from strongly disagree (1), disagree (2), neither agree/nor disagree (3), agree (4) to strongly agree (5), based on the ten service quality dimensions. The questionnaire comprised of two sections. The first section related to demographic information or classification data which incorporated gender and patronage (frequency of visit to the banking institution). Gender was assessed in order to assess whether male and female banking clients view the dimensions of service quality differently so that appropriate strategies may be adopted to fill the gaps that may be identified and to address such differences, if any, using suitable, gender focussed marketing approaches. The second section related to the service quality dimensions which were defined, for the purpose of this study, as:-

- *Tangibles* include the physical evidence of the service, that is, physical facilities, appearance of personnel, tools or equipment used to provide the service, physical representations of the service (a plastic credit card or a bank statement) and other customers in the service facility.
- *Reliability* involves consistency of performance and dependability. It means that the institution performs the service right the first time. It also means that the organisation honours its promises. Specifically, it involves accuracy in billing, keeping records correctly and performing the service at the designated time.

- *Responsiveness* concerns the willingness or readiness of employees of the institution to provide the service. It involves timeliness of service relating to mailing a transaction slip immediately, returning the customer's call quickly, giving prompt service (for example, setting up appointments quickly).
- *Competence* means possession of the required skills and knowledge to perform the service. It involves knowledge and skill of the contact personnel and the operational support personnel and research capability of the organisation.
- *Courtesy* involves politeness, respect, consideration, and friendliness of contact personnel (including receptionists, telephone operators). It includes the clean and neat appearance of public contact personnel.
- *Credibility* involves trustworthiness, believability and honesty. It involves having the customers' best interests at heart. Contributing to credibility are company name, company reputation and personal characteristics of the contact personnel.
- *Security* is the freedom from danger, risk or doubt. It involves physical safety (Will I get mugged at the automatic teller machine?), financial security (Does the company know where my stock certificate is?) and confidentiality (Are my dealings with the bank private?).
- *Access* involves approachability and ease of contact. It means that the service is easily accessible by telephone (lines are not busy and staff do not put you on hold for long periods of time), waiting time to receive service (for example, at the bank) is not extensive, convenient hours of operation and convenient location of service facility.
- *Communication* means keeping customers informed in a language that they can understand as well as listening to them. It may mean that the company has to adjust its language for different customers – increasing the level of sophistication with a well-educated customer and speaking simply and plainly to a novice. It involves explaining the service itself, how much the service will cost, the trade-offs between service and cost and assuring the client that the problem will be handled.
- *Understanding/knowing the customer* involves making the effort to understand each customer's needs. It involves learning the customer's specific requirements, providing individualised attention and recognising the regular customer.

Procedure

Initially, a pilot test of the questionnaire, using the same protocols and procedures as that designated for the actual data collection process, was conducted on 15 customers as a trial run to detect if any weaknesses in the design and instrumentation existed. The questionnaire was easily understood and no changes were required, possibly because the instrument was adapted from an established questionnaire. The questionnaire, which consisted of 40 statements (see sample of questions in Table 1), was personally administered to each respondent and a detailed explanation of the instructions was given. A total of 170 clients were approached from whom 159 correctly completed questionnaires were received. The response rate was enhanced by means of the personal-contact approach used, followed by periodic telephone follow-ups and personal visits.

Statistical analysis

The validity of the questionnaire was assessed using Factor Analysis. A principal component analysis was used to extract initial factors and an iterated principal factor analysis was performed using SPSS with an Orthogonal Varimax Rotation. Ten factors with latent roots greater than unity were extracted from the factor loading matrix and only items with loadings >0.5 were considered to be significant. Furthermore, when items loaded significantly on

Table 1: Sample of items from questionnaire measuring service quality in the banking institution

DIMENSION	ITEM	1	2	3	4	5
Tangibles	In this institution, facilities are attractive.					
	In this institution, technology looks modern.					
Reliability	The exact specifications of the client are followed.					
	At this institution, statements or reports are free of error.					
Responsiveness	When there is a problem, the organisation responds to it quickly.					
	Specific times for service accomplishments are given to the client.					
Competence	Materials are provided appropriately and are up-to-date.					
	Staff can use the technology quickly and skillfully.					
Courtesy	The staff members have a pleasant demeanour.					
	Staff members who answer the telephone are considerate and polite.					
Credibility	This service organisation has a good reputation.					
	This organisation guarantees its service.					
Security	At this institution, it is safe to enter the premises and use the equipment.					
	Used records are safe from unauthorized used.					
Access	It is easy to talk to a knowledgeable staff member when the client has a problem.					
	Service access points are conveniently located at this institution.					
Communication	The staff members can clearly explain the various options available to a particular query.					
	At this institution, the staff avoids using technical jargon when speaking to clients.					
Understanding the consumer	The staff tries to determine what the client's specific objectives are.					
	The service providers at this institution are flexible enough to accommodate the client's schedule.					

more than one factor, only that with the highest value was selected. The ten factors identified confirm the ten dimensions used in this study to determine service quality. The reliability of the questionnaire was determined using Cronbach's Coefficient Alpha and the alpha coefficient of 0.9404 reflected a very high level of internal consistency of the items and hence, a very high degree of reliability. It also reflects that the dimensions reliably determine service quality.

Descriptive statistics, using frequency analyses, percentages, mean analyses and standard deviations were utilised to assess perceptions of the ten service quality dimensions. Inferential statistics used to test the hypotheses included correlation, analysis of variance (ANOVA), t-test and the use of beta loadings. Mean scores and beta loadings were rounded off to three decimal places in order to be able to observe negligible differences.

RESULTS

The level of satisfaction with the service delivery was evaluated by asking respondents to assess service quality dimensions using a 5 point Likert scale and descriptive statistics were thereby generated (Table 2).

Table 2: Descriptive Statistics on the dimensions used to assess service quality

Variable	Mean	Standard Deviation	Minimum	Maximum	Critical Range
Tangibles	4.043	0.54	2.25	5.00	3.958 - 4.127
Reliability	3.614	0.66	1.40	5.00	3.510- 3.718
Responsiveness	3.637	0.66	1.50	5.00	3.533 - 3.740
Competence	3.830	0.62	1.50	5.00	3.734 - 3.927
Courtesy	3.829	0.64	1.25	5.00	3.729 - 3.929
Credibility	3.973	0.95	2.00	5.00	3.824 - 4.122
Security	3.938	0.59	2.25	5.00	3.845 - 4.031
Access	3.827	0.67	2.00	5.00	3.721 - 3.933
Communication	3.698	0.64	2.00	5.00	3.597 - 3.799
Understanding the cosumer	3.503	0.76	1.75	5.00	3.384 - 3.622

It can be established from Table 2 that the higher the mean, the more positive customers' perceptions are of the dimensions being measured. The favourable perception of most customers in descending level of impact are as follows: tangibles (Mean 5 4.043), credibility (Mean 5 3.973), security (Mean 5 3.938), competence (Mean 5 3.830), courtesy (Mean 5 3.829), access (Mean 5 3.827), communication (Mean 5 3.698), responsiveness (Mean 5 3.637) and reliability (Mean 5 3.614). The frequency analysis indicate that the majority of clients are relatively satisfied with the institution's tangibles, reliability, responsiveness, competence, courtesy, credibility, security, access and communication, hence, justifying higher mean values.

However, it is also evident from Table 2 that the lowest mean indicates that most customers are least satisfied with the staff's behaviour in terms of understanding the customer (Mean 5 3.503). It can be established that the customers are not completely satisfied with the way in which the staff responds to them. The frequency analyses reflects that customers feel that staff does not make an effort to know the customers and their needs. In this regard, 61% of the respondents experience a neutral feeling in terms of the staff recognising each regular client and addressing them by their name. As reflected in the frequency analyses, only 13.8% of the subjects strongly agree that the staff tries to determine what the client's specific objectives are. Furthermore, only 12.6% strongly agree that the level of service and cost of service is consistent with what the customer requires and can afford. In addition, only 13.8% strongly agree that the service providers are flexible enough to accommodate the customer's schedule.

However, it must be noted that all mean score values are relatively high and the maximum of 5 on the 5 point Likert scale for all dimensions indicate that there are clients who are totally satisfied with the respective determinants of service quality. The implication is that there is room for improvement simply to enhance the delivery of service quality and effectiveness. The lower minimum values of 1.25 (courtesy), 1.4 (reliability), 1.5 (responsiveness and competence), and 1.75 (understanding the customer) on the 1–5 point Likert scale clearly indicate areas where improvement can begin, certainly since these dimensions, particularly reliability, are critical to the banking sector.

Hypothesis 1

The dimensions reflecting service quality (tangibles, reliability, responsiveness, competence, courtesy, credibility, security, access, communication and understanding/knowing the customer) significantly relate to each other in determining service delivery (Table 3).

From Table 3, it is evident that the dimensions reflecting service quality (tangibles, reliability, responsiveness, competence, courtesy, credibility, security, access, communication and understanding the customer) significantly relate to each other at the 1% level of significance. Therefore, hypothesis 1 may be accepted.

Table 3: Inter-correlations amongst the dimensions used to assess service quality (N 5 159)

Variables	**Tangibles**	**Reliability**	**Responsiveness**	**Competence**	**Courtesy**	**Credibility**	**Security**	**Access**	**Communication**	**Understanding the customer**
Tangibles *r* *p*	1									
Reliability *r* *p*	0.499 0.000*	1								
Responsiveness *r* *p*	0.425 0.000*	0.742 0.000*	1							
Competence *r* *p*	0.423 0.000*	0.644 0.000*	0.695 0.000*	1						
Courtesy *r* *p*	0.458 0.000*	0.667 0.000*	0.739 0.000*	0.757 0.000*	1					
Credibility *r* *p*	0.271 0.000*	0.455 0.000*	0.472 0.000*	0.471 0.000*	0.487 0.000*	1				
Security *r* *p*	0.455 0.000*	0.619 0.000*	0.589 0.000*	0.624 0.000*	0.559 0.000*	0.477 0.000*	1			
Access *r* *p*	0.411 0.000*	0.580 0.000*	0.660 0.000*	0.650 0.000*	0.629 0.000*	0.418 0.000*	0.624 0.000*	1		
Communication *r* *p*	0.418 0.000*	0.622 0.000*	0.604 0.000*	0.665 0.000*	0.701 0.000*	0.421 0.000*	0.610 0.000*	0.728 0.000*	1	
Understanding *r* the customer *p*	0.387 0.000*	0.575 0.000*	0.666 0.000*	0.611 0.000*	0.620 0.000*	0.347 0.000*	0.617 0.000*	0.682 0.000*	0.671 0.000*	1

* $p < 0.01$

The implication is that since these dimensions are interconnected, high levels of satisfaction with each dimension would have a rippling or snowballing effect to create a magnanimous and positive perception of the service quality at the bank.

Hypothesis 2

Clients varying in biographical or classification data (gender, frequency of visit to the bank) differ significantly in their perceptions of the dimensions determining service quality (tangibles, reliability, responsiveness, competence, courtesy, credibility, security, access, communication and understanding the customer) respectively.

Table 4 indicates that males and females do not differ significantly in their perception of the dimensions relating to tangibles, reliability, competence, credibility, security, communication and understanding the customer respectively, that determine service quality. However, there is a significant difference in the manner in which males and females view the responsiveness of the bank, the courtesy of bank personnel and access to the bank (Table 5).

From Table 5, it is evident that males (Mean 5 3.807) feel more positively towards the institution's responsiveness as compared to females (Mean 5 3.485). Furthermore, males (Mean 5 3.970) consider staff in the bank to have more courteous mannerisms than females (Mean 5 3.702). In addition to this, males (Mean 5 4.000) show greater preference for the bank's accessibility than females (Mean 5 3.687). It is thus, clear from Table 5 that there is a significant difference in the perception of male and female customers. Females present themselves as being harder to satisfy and reflect higher expectations in terms of service quality as determined by responsiveness, courtesy and accessibility. Hence, hypothesis 2 is only partially accepted in terms of gender.

Table 6 indicates that there is no significant difference in the perceptions of customers differing in patronage (frequency of visit to the bank) regarding the dimensions of the study determining service quality (tangibles, reliability, responsiveness, competence, courtesy, credibility, security, access, communication and understanding the customer) respectively. Therefore, hypothesis 2, relating to frequency of visit, is rejected. Clearly, frequency of visit to the concerned bank is not influenced by

Table 4: T-Test – Perceptions Of Dimensions Determining Service Quality Based On Gender

Variables	**t-test for Equality of Means**		
	T	**Df**	**p**
Tangibles	0.313	157	0.755
Reliability	1.876	157	0.063
Responsiveness	3.146	157	0.002*
Competence	1.417	157	0.159
Courtesy	2.693	157	0.008*
Credibility	1.425	157	0.156
Security	0.266	157	0.791
Access	2.982	157	0.003*
Communication	1.273	156	0.205
Understanding the consumer	1.152	157	0.251

* $p < 0.01$

Table 5: Post Hoc Scheffe's Test Showing Mean Differences In Perceptions Of Dimensions Determining Service Quality Based On Gender

Variable	Gender	N	Mean	Standard Deviation
Responsiveness	Male	75	3.807	0.62
	Female	84	3.485	0.66
Courtesy	Male	75	3.970	0.55
	Female	84	3.702	0.69
Access	Male	75	4.000	0.65
	Female	84	3.697	0.68

Table 6: Anova – Perceptions Of Dimensions Determining Service Quality Based On Frequency Of Visit

Variables	F	P
Tangibles	1.503	0.226
Reliability	2.433	0.091
Responsiveness	0.254	0.776
Competence	0.277	0.759
Courtesy	1.543	0.217
Credibility	0.272	0.762
Security	1.291	0.278
Access	0.664	0.516
Communication	1.068	0.346
Understanding the consumer	0.272	0.762

customer perception of the dimensions of service quality of the bank. This finding runs contrary to the understanding that positive perception enhances repeat patronage (Heskett, Sasser & Schlesinger 1997).

Hypothesis 3

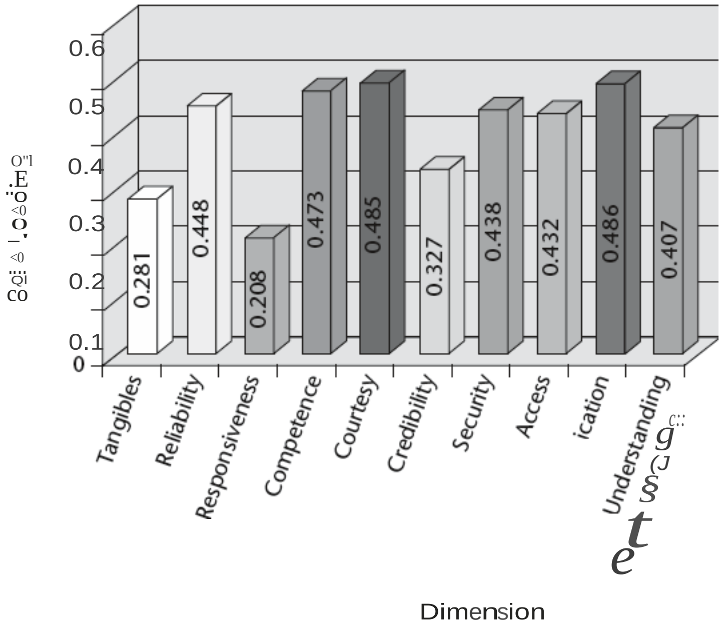
The dimensions determining service quality in the banking institution (tangibles, reliability, responsiveness, competence, courtesy, credibility, security, access, communication and understanding the customer) have varying levels of impact on service quality.

The beta loadings as reflected in Figure 2 indicate that the dimensions determining service quality have varying degrees of impact on service quality in the banking institution and therefore, serves as a guide in terms of what to prioritize and has implications for marketing and advertising. Hence, hypothesis 3 may be accepted. Figure 2 reflects that clients view communication (Beta 5 0.486) and courtesy (Beta 5 0.485) to be the most critical dimensions impacting on service quality in the bank. This is followed, in descending level of impact, by competence of bank staff (Beta 5 0.473), reliability (Beta 5 0.448), security (Beta 5 0.438), access (Beta 5 0.432), understanding the customer (Beta 5 0.407), credibility (Beta 5 0.327), tangibles (Beta 5 0.281) and responsiveness (Beta 5 0.208).

DISCUSSION

The results obtained will be discussed in terms of the findings of other researchers in

Figure 2: A Beta loadings indicating impact of the dimensions on service quality



the field and implications for practice will be highlighted for each dimension impacting on service quality. In addition, perceived gaps in service quality will be identified.

Tangibles

In this study, tangibles regarding the bank's appearanceof physical facilities, equipment, personnel, printed and visual materials scored the highest mean value (Mean = 4.043), thereby reflecting a very positive impression by customers in this regard. However, tangibles was viewed as having the second least impact on service quality. These results are in congruence with that of Nitecki (1996) and Zeithaml et al. (1990) whilst Vergueriro and De Carvalho (2000) found tangibles to be quite significant in assessing service quality.

Reliability

In this study, reliability regarding the staff's ability to perform the promised service dependably and accurately obtained an average mean value of 3.614. Furthermore, it was ranked fourth, based on beta loadings, in its impact on service quality. Similarly, Gronlund, jacobs and Picard (2001) carried out a study on the customers of Finnish Printing Companies that explored relations among importance ratings, performance ratings and problem experiences in different determinants of service quality. For customers of Finnish Printing Companies, the service dimension that had the highest correlation with overall grade for performance and services received was reliability. Hence, these studies suggest that reliability is the core of good service. Companies are supposed to be accurate and dependable and provide the service they promised to provide.

Responsiveness

In this study, responsiveness in terms of the staff's willingness to help customers by providing prompt service obtained an average mean value of 3.637. However, responsiveness surfaced as the dimension with the least impact on service quality. This may be attributed to an overlap in meaning between reliability and responsiveness, which perhaps also caused a shared importance between reliability and responsiveness in the study by Zeithaml et al. (1990).

Competence

In this study, competence of the staff's possession of the required skill and knowledge to perform the service obtained a mean value of 3.830. Competence surfaced as the third most important dimension in determining service quality. Competency is perhaps, a critical ingredient for success in service delivery in the banking sector where the consequence of a mistake can be devastating.

Courtesy

In this study, courtesy of the staff (measured by displaying politeness, respect, consideration and friendliness of contact personnel) obtained a mean value of 3.829. Courtesy surfaced as being second in its impact on service quality. Similarly, in De Man, Glemmel, Vlerick, Van Rijk and Dierckx's (2002) study based on the patients' and personnel's perceptions of service quality and patient satisfaction in the nuclear medicine department at the University hospital, it was revealed that the dimension measuring perception of courtesy scored the highest for the personnel. With respect to Murthy's (1999) study to assess the quality of care and client satisfaction with Family Welfare Programme in a district in rural Maharashtra, several Indian studies have reported that the rude behaviour of health staff has been a major reason why women have not liked or used the government health services. Clients of the government's Family Welfare Programme received poor quality of care. He attributed this to the attitudes of health workers, who showed little respect for clients, especially if they were poor, illiterate or came from lower social strata. Clearly, the results indicate that the lack of courtesy amongst personnel can be detrimental to high contact service providers.

Credibility

In this study, credibility of the staff related to being trustworthy, believable and honest when providing a service obtained a high mean value of 3.973. This indicates that the majority of the respondents are satisfied with the staff members displaying the qualities of being honest and trustworthy. Credibility however, was ranked eighth in its impact on service quality with other dimensions taking priority. Contrary to these findings however, Behe (2002) found in a study of a Retail Garden Centre in North Carolina that customers of both traditional, free-standing garden centers and mass market garden centres had high product and service quality expectations. The findings showed that both customer groups valued the credibility dimension the highest. Similarly, a study conducted by Bove and Johnson (2002) in the hairdressing context provided a research setting in which personal loyalty could exist. Their findings revealed that credibility was the most significant indicator of personal loyalty. Here, trust was seen as an interpersonal state that reflects the extent to which a customer believes that the hairdresser is honest, can predict the hairdresser's behaviour, can depend on the hairdresser when it counts and has faith that the hairdresser will continue to act in her best interests.

Security

In this study, security (where the clients are free from danger, risk or doubt) obtained a high mean value of 3.938. This indicates that the majority of the respondents are satisfied with the security measure provided by the bank. Furthermore, security surfaced as being fifth in its impact on service quality at the bank. Security has long been considered one of the most crucial issues for internet users. Findings from interviews indicated that internet banking at its present stage is considered to be relatively secure. In addition, in the study undertaken by Curry and Sinclair (2002) on assessing the quality of three different types of service (community rehabilitation team, the outpatient clinic and general practitioner service) of physiotherapy services, it was noted that the highest expectation score was related to the security dimension. Patients wanted to feel safe during their treatment.

Access

In this study, access obtained a mean value of 3.827. This indicates that the majority of the respondents expressed a significant degree of satisfaction with the staff's approachability and with ease of contact. Furthermore, access surfaced as the sixth important dimension in determining service quality at the bank.

Communication

In this study, communication with the client/customers obtained an average mean value of 3.698. This indicates that the majority of the respondents reflect only an average level of satisfaction with the staff's communication skills, that is, listening to customers and acknowledging their comments and keeping customers informed in a language they can understand. Communication surfaced as the most critical dimension in determining service quality at the bank.

Understanding the customer

In this study, understanding the customer obtained the lowest mean value of 3.503. This indicates that the majority of the respondents reflect the least positive perception of the staff members making the effort to know customers and their needs. Furthermore, understanding the customer surfaced as the seventh important dimension determining service quality. The results of a study showed that a Vehicle Certification Agency (VCA) which scored the highest in terms of understanding the customers' needs takes into account the customers' views made directly or through their trade associations before changes to regulations and procedures are introduced. Furthermore, they keep business relationships confidential with individual customers and they also regularly discuss with the industry associations how effectively they are performing (VCA 2003).

Perceived gaps in service quality at banking institution

Customers' importance of the dimensions determining service quality was measured in terms of impact, that is, the dimension considered to be most important was the one having the greatest impact on service quality (1 – greatest impact). Conversely, the dimensions considered to be least important was the one having the least impact on service quality (10 - least impact). Furthermore, customers' perceptions of the current perception of the dimensions determining service quality were evaluated. The dimension having the most positive perception was ranked 1 and that with the least positive perception was ranked 10. If one has to map the rankings of customers' perceptions of the dimensions (1 5 most positive; 10 – least positive) used to determine service quality at the bank with their rankings of the perceived level of impact of the dimensions (1 – greatest impact; 10 – least impact) on service quality (Table 7), the gap and hence, the areas for improvement become distinct (Figure 3).

Table 7 indicates that:

- With regards to credibility and tangibles, service delivery far exceeds expectations.
- With regards to security and responsiveness, service delivery exceeds expectations.
- With regards to access, service delivery is on par with expectations.
- With regards to communication and reliability, expectations far exceeds service delivery and hence, depicts areas for drastic improvement.
- With regards to courtesy and understanding the customer, expectations

exceeds service delivery and hence, depicts areas for improvement.
- With regards to competence, expectations exceed service delivery by a small margin and hence, slight improvement will be beneficial.

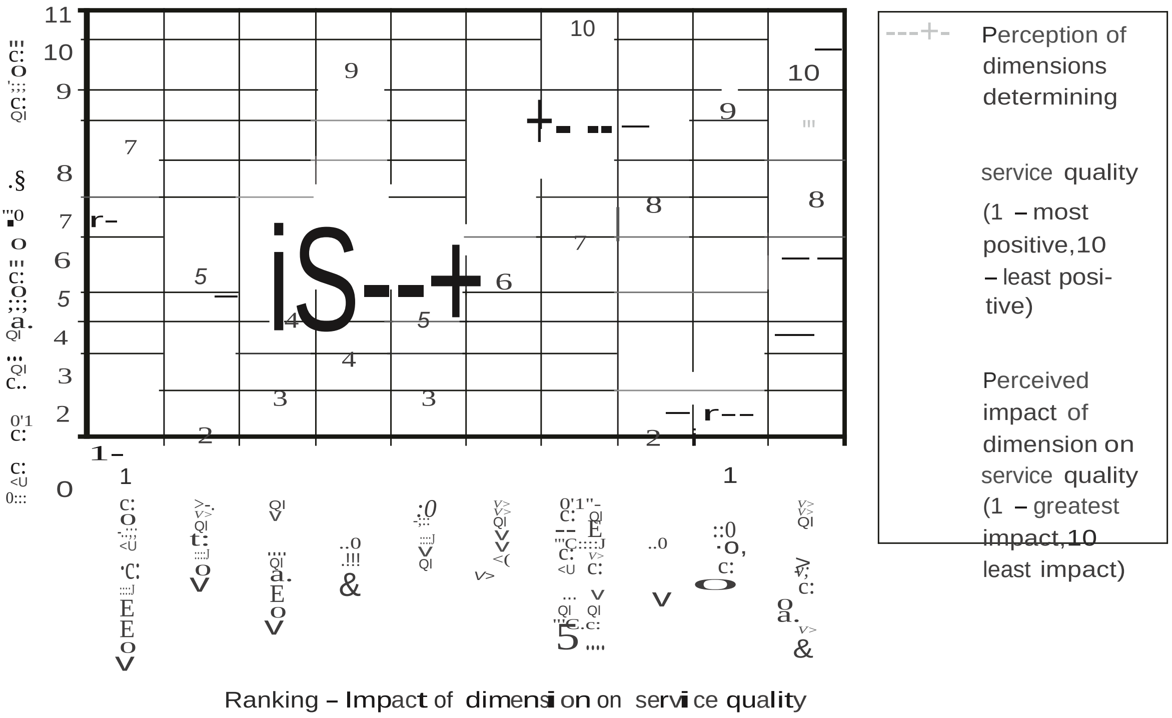
If these areas are improved, Gaps 1 to 5 will be addressed especially since:

- Communication and understanding the customer affects Gap 1.
- Communication and reliability affects Gaps 2 and 4.
- Communication and courtesy affects Gap 3.
- Communication, understanding the customer, reliability and courtesy affects Gap 5.

Table 7: Mapping Customers' Perceptions Of The Dimensions Used To Assess Service Quality With The Level Of Impact Of These Dimensions In Determining Service Quality

Dimension Determining Service Quality	**Perceptions of the dimensions used to assess service quality (1 – most positive; 10 – least positive) (Ranking based on Mean Scores)**		**Perceived impact on service quality (1 – greatest impact; 10 – least impact) (Ranking based on Beta Loadings)**		**Outcome**
Communication	3.698	7	0.486	1	Expectations far exceeds service delivery Drastic improvement needed
Courtesy	3.829	5	0.485	2	Expectations exceeds service delivery Improvement needed
Competence	3.830	4	0.473	3	Expectations exceed service delivery by a small margin Slight improvement will be beneficial
Reliability	3.614	9	0.448	4	Expectations far exceeds service delivery Drastic improvement needed
Security	3.938	3	0.438	5	Service delivery exceeds expectations
Access	3.827	6	0.432	6	Service delivery is on par with expectations
Understanding the consumer	3.503	10	0.407	7	Expectations exceeds service delivery Improvement needed
Credibility	3.973	2	0.327	8	Service delivery far exceeds expectations
Tangibles	4.043	1	0.281	9	Service delivery far exceeds expectations
Responsiveness	3.637	8	0.208	10	Service delivery exceeds expectations

Figure 3: Mapping gaps between perceptions of dimensions and impact of dimensions on service quality



Perceived impact of biographical data

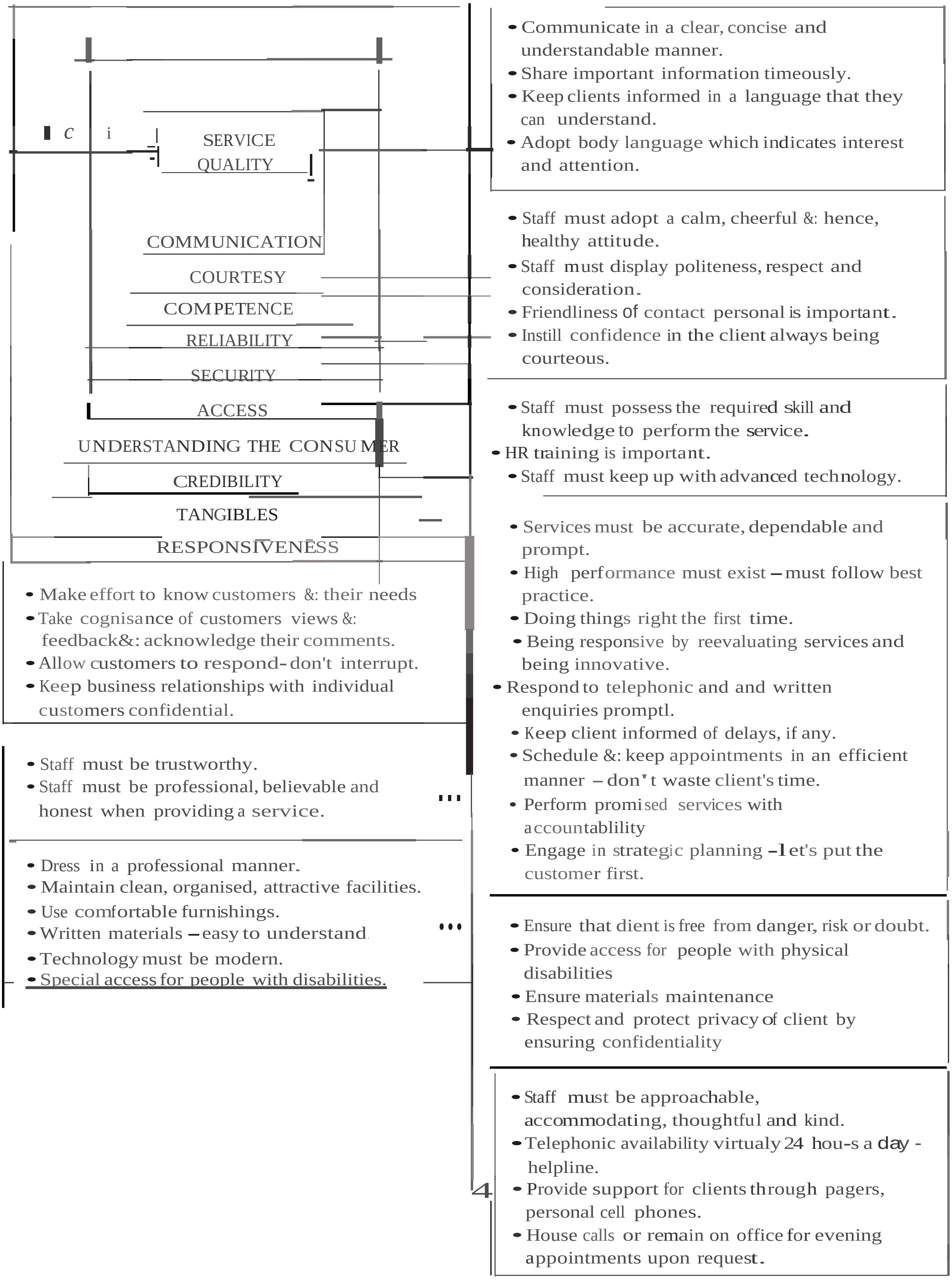
Significant gender differences were noted in terms of three dimensions determining service quality, namely, responsiveness, courtesy and accessibility. The results indicate that female clients at the bank are harder to satisfy in terms of these three criteria of service quality. The implication is that marketing approaches need to be directed to a greater extent at females relating to these criteria and staff need to be trained in addressing issues whilst taking cognizance of this outcome.

RECOMMENDATIONS AND CONCLUSION

To improve these areas and others, Figure 4 illustrates a framework for the delivery of excellent service quality. Communication in the banking institution was considered to be the most important dimension determining service quality. The other dimensions, in descending level of impact, from the center point to the outermost segment, in determining service quality are depicted in Figure 4.

With the challenges that banks face today, they have to adopt a proactive approach to the way they do business. Hence, the recommendations presented in Figure 4 should be considered as they play a pivotal role in acquiring the best service delivery at the banking institution. At a time when the banking industry witnesses fierce competitive pressures and faces an increasingly discerning clientele, it allows a bank to differentiate itself strategically from its competitors by improving service quality, thereby enhancing accessibility and responding to customer demands. It can help reduce high costs associated with rectifying problems by anticipating problems before they actually occur and ensuring that the service delivered to the customers is of high quality in the first place; otherwise, it will not survive in this highly competitive financial world.

Figure 4: Frame-Nork for Enhancing Quality of Service



- Communicate in a clear, concise and understandable manner.
- Share important information timeously.
- Keep clients informed in a language that they can understand.
- Adopt body language which indicates interest and attention.

- Staff must adopt a calm, cheerful &: hence, healthy attitude.
- Staff must display politeness, respect and consideration.
- Friendliness of contact personal is important.
- Instill confidence in the client always being courteous.

- Staff must possess the required skill and knowledge to perform the service.
- HR training is important.
- Staff must keep up with advanced technology.

- Services must be accurate, dependable and prompt.
- High performance must exist – must follow best practice.
- Doing things right the first time.
- Being responsive by reevaluating services and being innovative.
- Respond to telephonic and and written enquiries promptl.
- Keep client informed of delays, if any.
- Schedule &: keep appointments in an efficient manner – don't waste client's time.
- Perform promised services with accountablility
- Engage in strategic planning -let's put the customer first.

- Ensure that dient is free from danger, risk or doubt.
- Provide access for people with physical disabilities
- Ensure materials maintenance
- Respect and protect privacy of client by ensuring confidentiality

- Staff must be approachable, accommodating, thoughtful and kind.
- Telephonic availability virtualy 24 hou-s a day - helpline.
- Provide support for clients through pagers, personal cell phones.
- House calls or remain on office for evening appointments upon request.

- Make effort to know customers &: their needs
- Take cognisance of customers views &: feedback&: acknowledge their comments.
- Allow customers to respond- don't interrupt.
- Keep business relationships with individual customers confidential.

- Staff must be trustworthy.
- Staff must be professional, believable and honest when providing a service.

- Dress in a professional manner.
- Maintain clean, organised, attractive facilities.
- Use comfortable furnishings.
- Written materials – easy to understand.
- Technology must be modern.
- Special access for people with disabilities.

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Education and learning technologies: the dilemma of distance education

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ABSTRACT

The challenge of the Chair of Department of Marketing and Retail Management (DMRM) is to plan and manage the DMRM in such a way so as to ensure that the department continues to deliver relevant marketing education to students, while still meeting the broader University objectives. This planning and management task needs to take into consideration the challenges facing the DMRM in the delivery of marketing education. One such challenge is to decide on what technology to use to deliver and support learning amongst the DMRM's students. The process of choosing one or more technologies to adopt as a preferred learning technology within the DMRM can either be done by drawing on the current thinking on this topic in the academic literature, by speaking with peers and other educational and technology experts, by asking the lecturers involved in the every-day delivery of this education, or by surveying students themselves. The lecturer is the key driver behind the delivery of education within the DMRM and will be instrumental in the successful adoption of any technology decided upon. Their views were obtained using the Delphi methodology and analysed using Chi-square analysis. The findings suggest that a learning management system is considered by lecturers as the preferred technology to use.

Keywords: learning technologies; higher education; learning management systems (LMS); mega universities

INTRODUCTION

A highly competitive and dynamic educational landscape exists throughout the world, brought about by numerous factors. These factors include the impact of globalisation, the move towards the knowledge society, the current global financial crisis, rising unemployment, the increasing pace of change, and the influence of the internet and other technologies in extending the regional, national and international reach of learning providers (Freedman, 2008; Marginson, 2004). This last-mentioned factor has resulted in educational institutions which previously had a narrow, local focus now expanding their offerings and competing across borders. This has placed increased pressure on educational institutions which were previously protected by geographic distance. This competitive and dynamic educational landscape has resulted in universities and further education and training institutions increasingly competing with each other globally for students (Marginson, 2006). When this situation is combined with the escalating political and business demands being placed on higher educational intuitions to produce qualified graduates (especially in the South African context given the disparity that exists in educational levels between the white and black communities), then the urgency to find workable solutions to improve throughput rates and reduce attrition rates in higher education becomes apparent (Nzimande, 2009). One possible solution is to put technology to work to assist in facilitating the delivery of higher education and to improve and support learning amongst all student groups (Van Dusen, 1997). The conundrum that education providers face is which learning technologies to use in order to extend the reach, quality and success of existing and future educational offerings?

The academic departments within the five main Colleges comprising the University of South Africa (Unisa) serve as the primary academic 'touch points' with learners and it is these departments that will ultimately adopt and drive the use of learning technologies within the University. It can be further argued that it is ultimately the lecturers within these departments who will be responsible for the effective implementation of the chosen learning technologies in question. With this in mind, this study attempts to determine the lecturers' views as to the preferred learning technology to use to serve students within the Department of Marketing and Retail Management (DMRM) at Unisa.

BACKGROUND

Unisa, as a distance learning institution, is one of the world's largest 'mega universities' (Anon, 2005) with a population of approximately 250 000 students (Anon A, 2009). The DMRM is one of six academic departments within the School of Management Sciences, which in turn is one of three Schools within the College of Economic and Management Sciences, the largest College of five within Unisa (Anon B, 2009). The College itself has some 130 000 students across the world.

The challenge of the Chair of Department (CoD) of the DMRM is to plan and manage the DMRM in such a way as to ensure that the DMRM continues to deliver relevant marketing education to all students, while still meeting the broader University objectives. Currently, the DMRM has more than 22 000 module registrations per annum. One of the areas of consideration for the CoD, is the possible use of new technologies to support the learning offerings of the DMRM.

In education, the role of technology has increased dramatically (Blomqvist, Handberg & Naeve, 2003) (Cherwitz & Sanford, 1999). Today, there are many different types of technologies that a University can draw on in order to facilitate the delivery of education to its learners. These technologies range from traditional paper-based learning materials and face-to-face classes, to electronic learning materials, tools and channels such as learning management systems, online technologies, email, mobile technologies, CD/DVD technologies, teleconferencing, interactive TV, radio, personal digital assistants (Engelbreght & Kirchheimer, 2007; Siemens & Tittenburger, 2009). The question arises as to what technology options are available to the DMRM and which of these are the most suitable to be used by the DMRM in servicing its students.

Answering this question can be done by either drawing on the current thinking on this topic in the academic literature, by speaking with colleagues, peers and other experts in the field of education and educational technology, by asking the lecturers who are involved in the every-day delivery of learning to students, or by surveying students themselves. This study focuses on the lecturers' perspectives. The lecturer, after all, will be the key driver behind the adoption and use of any technology that is decided upon within the DMRM.

With this in mind, the research problem, question and objectives are outlined below. This is followed by a description of the research methodology that was used, as well as the findings and conclusions that can be drawn from these findings.

RESEARCH PROBLEM

While there may be a strong argument supporting the idea that learning should be learner-centric (O'Neil & McMahon, 2003), the reality is that to a large extent it is the academic that takes responsibility for developing the learning content and who is often the key driver behind pursuing and using new technologies for the delivery of education within an academic department. Any research that is aimed at determining the best mix of technologies to use in delivering learning to students therefore needs to take the lecturers' views into consideration.

RESEARCH OBJECTIVE

The objective of this particular study is thus focused on determining the opinions of the lecturing staff within the DMRM as to the most suitable learning technology(ies) to use in delivery learning to students in the distance learning sphere.

RESEARCH QUESTION

This study strives to answer the question as to which new learning technologies are viewed by the lecturing staff within the DMRM as the most appropriate for reaching and serving the Department's learners, as well as the challenges that are facing the implementation of these technologies. The term 'new' is used in conjunction with the term 'technologies' to depict all non-paper-based learning methods. Learning technologies can be defined as various technologies that can be used to deliver, enhance, support and generally facilitate learning to and by students (Williams, 2005).

RESEARCH METHODOLOGY

As was mentioned earlier, this particular study focuses on only one aspect of the broader picture. Ultimately the results of this study will need to be combined with the findings from the other components of the larger study, namely, a survey of students and of the literature). The methodology that was used for this study is based on the Delphi technique. The Delphi technique is an iterative questioning process that serves as a way of obtaining a collective view from individuals where there is no or little evidence and where opinion is important (Thangaratinam & Redman, 2005).

A total of fourteen junior and senior lecturers were involved in the study; the authors did not contribute in any way to the input and resigned themselves only to providing written explanations introducing each step of the process and recording the results. Of course, the collegial nature of this research could have had some influence on promoting participation which one or more lecturers may otherwise not have agreed to. In addition, this factor might also have contributed to more scathing input than might otherwise have been the case (however, this is not necessarily a negative aspect). The process that was followed in the gathering of data can be outlined as follows:

- *Step 1:* All the lecturers in the DMRM were initially asked to identify at least five different new learning technologies that they believed would help support the learning offerings of the DMRM within the distance learning context. At the same time, they were asked to identify the major challenges (advantages and disadvantages) of implementing these technologies, and to suggest what might be done to overcome any potential problems identified in using the technology.
- *Step 2:* The responses from the various lecturers were then combined into a single table with common technologies and challenges clustered together in the table only once. There were a number of commonalities identified by the various lecturers, but there were also a number of unique challenges identified by some of the lecturers that were not mentioned

by their colleagues. This ensured that a broader spectrum of challenges was identified in association with most of the technologies in question; more so than might have been the case had the research only been conducted on a one-on-one basis. It should be mentioned, however, that several technologies were identified without any challenges having been highlighted for the technologies in question.

- *Step 3:* This single table was then resent to all the lecturers, asking them to 'fill the gaps' especially where no challenges had been identified or where they felt there may be some shortcomings. Once again, the answers were synthesised into a single – but now expanded and more complete – table. This table is quite extensive and too long to serve as an attachment to this article. It can therefore be accessed at http://www.cbothma.co.za/ME/list_of_technologies.htm. A shortened list highlighting just the technologies without the additional explanation of the benefits/drawbacks is attached as Appendix A.
- *Step 4:* The next step involved listing the various technologies identified by the lecturers – 24 in all –in the form of a checklist (without the accompaning explanations and challenges) and then asking the lecturers to identify their preferences for the ten most important or relevant technologies (i.e. they simply had to tick the ten technologies of their choice and not rank them). A frequency table was created and the ten most popular technologies were thus identified.
- *Step 5*: Using this revised list of the ten most popular technologies, the lecturers were then asked to prioritise the list from one to ten, with one being the most important and ten being the least important. Once again, a new list was developed based on the mean score for the priorities indicated for each technology across all the lecturers concerned. From this revised and prioritised list, the five most important technologies were then identified. Table 1 outlines the findings from steps 3 to 5.
- *Step 6:* Finally, the lecturers were asked to evaluate the five technologies in a pairwise fashion. In each instance, the lecturer was requested to compare the two technologies involved in each pairwise comparison and to allocate a score of '1' to the technology that they thought was the most appropriate of the two, with a '0' being allocated to the alternate (or least preferred) technology. In the case where both technologies were considered equally important, a score of '0' was allocated to both. These findings were then transposed into a data table and analysed statistically using the Chi-square method. The results of these statistical analysis findings are outlined in the findings below (see Tables 2-3 below).

Comments on the methodology

Although it might appear tedious, the iterative Delphi methodology proved effective in ensuring that each lecturer (from junior to senior) had an opportunity to contribute to the overall decision-making in selecting the most suitable technology(ies) for the DMRM to use. Not only did everyone have an opportunity to contribute, but they could also build on the comments that went before (much like with sharing ideas in a focus group). What is more, with each iteration lecturers became more familiar with the technology options that had been identified and with the terminology being used.

The iterative nature of the Delphi technique also gave everyone a chance to think about their options. This could have been achieved by means of a focus group, but it is thought likely that (a) the junior lecturers would have 'stood aside' for the senior lecturers and (b) the less vocal lecturers might not have had a chance to contribute to the discussion.

In gathering and consolidating the

feedback from lecturers about the various learning technologies that the DMRM could use, it also became apparent that it is problematic to view all of these technologies as being of the same type. Some technologies, for example, are primarily transmission channels or environments (the internet, cellular technology and radio), while others are tools that reside within or 'ride' on top of these channels (such as instant messaging, SMS and blogs). Some technologies are hardware-based (the internet), while others are software-based (learning management systems).

Furthermore, many of these technologies overlap with each other. Users may speak of learning management systems, web-based learning, online learning and other such phrases, all as being uniquely different things but essentially they are all similar, if not the same. This semantic confusion played a part in this study with several lecturers identifying some technologies as uniquely different when in fact they are essentially the same. In some instances this was overcome in the process of consolidating the technologies identified by each lecturer into a single table by the authors. Clearly common technologies (albeit phrased or termed differently by a lecturer) were grouped together under a common heading. Nevertheless, some of the listed technologies still overlap with one another – for example, web-based learning versus a learning management system, and webinars versus YouTube.

It is also true that many if not most of these technologies are linked to the internet and as such can together be described as online technologies. Nevertheless, even within the online realm, there are a number of internet-based sub-technologies that can be used separately or together in order to serve learners (for example, websites, discussion forums, webinars, instant messaging, email). Going forward, it is thought prudent to consider these sub-technologies separately.

A final comment about the methodology relates to the issue of the distance education environment. The lecturers were asked to consider technologies that were suitable to this environment. The reality, however, was that as all of the lecturers work within this environment, this is the only frame of reference that they have to judge from. They were not able to practically compare or differentiate these technologies between residential and distance education institutions.

RESEARCH FINDINGS

The research findings can be divided into three main groups:

1. The initial list of 25 technologies identified by the lecturers (Appendix A). A more complete list outlining the associated benefits and drawbacks of each technology can be found at: http://www.cbothma.co.za/ME/list_of_technologies.htm
2. The top ten technologies and their respective rankings as identified by the lecturers (Table 1).
3. The results of a statistical analysis of the pairwise comparisons of the top five technologies undertaken by the lecturers. This resulted in a total of $n(n-1)/2$ 5 10 comparisons (where n equals the number of variables, in this case, the number of technologies, namely five). The results of this analysis are outlined in Tables 2-3 below.

Ranking the top ten technologies

Table i below highlights the top ten technologies selected by the lecturers and provides a mean ranking score for each technology where a lower value represents a more preferred technology. These rankings represent the outcome of steps 4 and 5 in the research methodology.

Table 1: Ranking and weightings of top ten technologies*

OVERALL RANK	PROPOSED TECHNOLOGY	MEAN RANKING**
1	Learning Management System	1.9
2	CD/DVD technologies	5.0
3	Email	5.6
4	Web-based learning sites	5.7
5	Automated telephone self-help services	5.7
6	SMS/MMS	5.8
7	Satellite/video/teleconferencing	6.0
8	Online discussion classes	6.0
9	Webinars/podcasting	6.1
10	Cellular/mobile technology	7.2

* The technologies in bold are the 5 selected technologies for further analysis
** Lower values 5 'more preferred', while higher values 5 'less preferred'

What the Table 1 highlights is the importance that lecturers attached to the use of a Learning Management System (LMS) as their preferred technology. This issue is discussed in more detail in the conclusion section. Although not confirmed statistically at this point, it is clear that the mean ranking score for the LMS appears significantly different from the ranking score achieved by each of the other nine technologies. The mean ranking score was calculated on the basis of the mean or average ranking that the lecturers gave to each technology, where 1 5 top or 'most preferred' and 10 5 bottom or 'least preferred'. The next eight technologies following the LMS were all very similar in their mean ranking scores. The last-mentioned technology – namely cellular/ mobile technology – was interestingly enough not considered very important at all, with a mean ranking score of 7.2, which sets it somewhat apart from the other top ten technologies.

The top five technologies (highlighted in bold in Table 1 and located above the dotted line) are examined in more detail as part of step 6 of the research methodology, with the findings presented in tables 2 and 3 below. The question arises as to why technologies numbers 6 to 9 were not included in the last part of the analysis (namely, the pairwise comparisons). The reason is (a) that this study is attempting to focus in on the top one or two technologies (and is thus not as concerned with the 'less preferred' technologies), and (b) undertaking a pairwise evaluation of all ten technologies would have resulted in lecturers having to consider 45 different combinations – an onerous task. The greater the number of comparisons, the less accurate the comparisons become, simply because respondents are lulled into making impulsive choices.

Selecting the preferred technology

In step 6, the study expands on what has gone before by asking lecturers to consider the five technologies identified in Table 1 above, in a pairwise process. A frequency count of all of the preferred technologies

Table 2: Descriptive statistics of the data obtained from the pairwise comparisons

Variables	F	Mean	Std. Deviation	Min	Max	Expected F	Observed F (0)	Observed F (1)	Residual
CD/DVD	52	.3654	.48624	0	1	26	33	19	-7.0
AUTO/TEL	52	.3846	.49125	0	1	26	32	20	-6.0
WEB	52	.4615	.50338	0	1	26	28	24	-2.0
EMAIL	52	.2500	.43724	0	1	26	39	13	-13.0
LMS	52	.7115	.45747	0	1	26	15	37	11.0

from each pairwise comparison was then captured in a contingency table and analysed using a Chi-squared analysis and SPSS. Tables 2 and 3 below highlight the results of this analysis. The purpose of this analysis is to target the preferred learning technology(ies).

The above descriptive statistics reveal that there were 52 frequency counts (F) of either a '0' or a '1' for each of the five variables. The 52 is computed on the basis that there were 13 respondents that completed four pairwise comparisons for each of the variables; thus 13 × 4 = 52. For each of these variables the mean is calculated on the basis of the observed positive responses (depicted by 1s) divided by F (i.e. 52); thus for variable LMS it is 37/52 = 0.7115. The standard deviation on the other hand is a measure of variability of the population from the mean. A value of .457, for example, suggests that 45.7% of the observations can be found within one standard deviation of the mean – a relatively good percentage suggesting a normal distribution for the observations.

The minimum and maximum values reflect the two possible options that respondents could choose from, where a '1' = "this variable is more important than the alternative" and a '0' = "the alternate variable is more important than this one" or "they are equally important". The expected N (26 for all five variables) suggests that it was expected that half of the responses would be 0s and the other half 1s.

The observed F(0) reflects the number of actual '0s' allocated by the lecturers for the variable in question, while the observed F(1) reflects the number of actual '1s' allocated by the lecturers for the variable. In the case of the LSM variable, for example, there were 15 '0s' and 37 '1s'. Finally, the residual represents the deviation from the expected F (of 26). For LSM, for example, the residual is calculated as follows: 37 – 26 = 7. If the residual is a positive value, then this reflects a preferred technology (1s > 0s), while if the residual is negative this represents an indifferent or lesser preferred technology (0s > 1s).

Table 3 on the following page highlights the primary Chi-square parameters identified by this analysis.

The purpose of the Chi-square analysis is to determine whether the observed frequencies (counts) differ markedly from what we would expect by chance (Anon C, 2009). The Chi-square formula is (Schmidt, 2009):

$$X^2 = \frac{\sum(F_o - F_e)^2}{Fe}$$

where X^2 = Chi-square
F_o = observed frequencies
F_e = expected frequencies

In the Table 3, df represents the degrees of freedom (i.e. 1) and at df(1), the critical Chi-square value (X^2_{crit}) is 3.84 corresponding to a p-value of 0.05. Any calculated value (X^2_{calc}) above 3.84 (X^2_{crit}) suggests that the variable in question is significant. The critical value was determined from a look-up table (Steyn, Smit, Du Toit & Strasheim, 2003).

The above statistics reflected in table 3 thus indicate that:

- The three variables CD/DVD, AUTO/TEL

Table 3: Chi-square test statistics

	CD/DVD	AUTO/TEL	WEB	EMAIL	LMS
Chi-square (X^2calc)	3.769*	2.769*	0.308*	13.000*	9.308*
df (degrees of freedom)	1	1	1	1	1
Asymp. significance	0.052	0.096	0.579	0.000	0.002

* Zero cells have frequencies less than 5. The minimum expected was 26.

and WEB do not stand out as significant technologies in the context of this study, as their calculated Chi-square values do not exceed the critical Chi-square value. *(Clearly, they are still technologies worth considering but do not represent the technology of choice.)*

- Both the LMS and EMAIL stand out as significant variables in as far as this study is concerned. This is confirmed by the LMS's Chi-square of 9.308 and the EMAIL's Chi-square of 13.000 both of which are *significantly* higher than the critical Chi-square value.
- In the case of the asymptotic significance value, all three values for CD/DVD, AUTO/TEL and WEB are greater than p50.05, suggesting that they *are not* significant, while in the case of both EMAIL and LMS the asymptotic value is less than p50.05, indicating that they are significant. This supports the Chi-square value indicating that these two technologies are significant.
- The sign of the residual value gives an indication of direction of the significance, suggesting that that the preferred learning technology of choice for staff is the LMS, while EMAIL is equally so, not the technology of choice for staff (reflected in a high chi-square value of 13.000, but with a minus sign associated with the residual value corresponding to the '1s') (Table 2).

CONCLUSIONS AND RECOMMENDATIONS

Given the abovementioned findings, the following *main* conclusion can be drawn:

Lecturers support the adoption of an LMS as the preferred learning technology

The lecturers interviewed overwhelmingly supported the use of an LMS as their preferred technology of choice. This is a very interesting finding. Unisa has an excellent LMS in place called *myUnisa* (Unisa Learning Management System, 2009). It is a powerful online tool that is available to all registered students. Unisa is constantly working on improving this system. The interesting fact is that most lecturers within the DMRM do not use myUnisa. The findings thus suggest that although lecturers are reluctant, unwilling or unable to use an LMS, they do appear to recognise the value that it brings to learning and as a means of supporting the student.

The findings might also mean that myUnisa is all that lecturers are familiar with (within their academic sphere) and their selection of an LMS as the preferred learning technology of choice is based on this familiarity. It could also mean that because the University has been pressing for the use of the LMS amongst academics (even making its use part of the individual's performance management agreement), lecturers feel obliged to recommend its use.

It is also interesting to note that web-based learning also appeared in the list of top five technology choices. Bearing in mind that the myUnisa LMS is essentially a web-based learning system, there is arguably a serious overlap between these two choices. This supports the view that lecturers consider the web (or the idea of 'online learning' as embodied in an LMS) as the route to go.

Another suggestion might be that lecturers feel that students are facing a medium-overload (i.e. the use of too many technology channels), which might impact on the effectiveness of many of these technologies, especially if they are used separately. An LMS, on the other hand, has the potential to incorporate many if not most of these technologies (such as webinars, blogs, email, SMS, discussion forums) into a single interface or online environment and could, therefore, serve as 'home' or 'base' for many of the other suggested technologies. This would make it a 'one-stop shop' of choice.

Recommendations

If it is accepted that the LMS is the technology of choice, then it is recommended that the CoD invest as much time and effort in pursuing the use of this technology within the DMRM. Perhaps the training of lecturers on how to use the LMS might be one option and/or the CoD might seek out new ways of using the features of the LMS in support of the DMRM's teaching efforts. Where certain tools are thought to be missing, the CoD might even work with the University's ICT Department, to serve as a test-bed for the development of these new tools. Certain policies and guidelines could be documented to assist lecturers in using this technology more effectively. Additional staff or assistants could be appointed to take charge of many of the administrative aspects of using this technology. The proposed second-phase of this research study that will examine the students' opinions of the best technologies to use, will delve deeper into their view and acceptance of an LMS.

In summary, the conundrum is becoming clearer. The learning technology of choice from the perspective of lecturers is the LSM (myUnisa) and the DMRM should invest effort in embracing this technology within the Department. But the views of students still need to be understood.

Further conclusions

Besides for this main conclusion outlined above, which is what the study set out to determine, a number of other secondary conclusions can be drawn based on the information obtained from lecturers (much of which is outlined in the table available at http://www.cbothma.co.za/ME/list_of_technologies.htm). These conclusions are briefly outlined below:

- *Why is email not popular?* One suggestion is that lecturers are probably averse to email because it represents work and an intrusion in their already busy day.
- *Why automated telephone self-help services?* It seemed an unusual technology for lecturers to suggest. It is believed that the answer lies in the fact that lecturers see this technology as helping them deal with the deluge of incoming telephone calls received daily from students.
- *Why CD/DVD technologies?* – The timeous delivery of study material is a recurring problem in the distance learning environment and a problem that students often approach lecturers about (albeit that it is an administrative matter). CD/DVD technology is seen as a means of study material delivery.
- *Technologies represent more work* – One of the side issues that came out of this study is that the implementation of these technologies represents more work. Lecturers already feel overburdened, and having to embrace a new learning technology in their already busy day is very daunting. This suggests that there should be a focus on only one technology such as the LMS, which in any case is an all-encompassing technology.
- *Lecturers' awareness of learning technologies is limited* – Another issue that was mentioned was that lecturers felt themselves to be out of touch or unfamiliar with many of the new technologies available on the marketplace. In fact, they felt that students were in some instances more familiar with these technologies than

the lecturers themselves. Technology was thus seen as a barrier to effective teaching from the lecturer's perspective.

- *Unisa is driving technology adoption*. There was also a feeling that the University (in particular, the ICT Department) was driving the adoption and implementation of new learning technologies within the broader University context, with lecturers expecting to comply and 'fit in'. This typical 'top down' approach does not encourage the use of technology amongst lecturers. In fact, it may instead create a level of resistance amongst lecturers.
- *What about the students?* Most of the technologies suggested by lecturers are either web-based and/or they require the use of a computer. Unisa has a relatively poor student population, many of which come from disadvantaged backgrounds. These technologies may be out of their reach. This potential problem needs to be considered carefully to see how the broadest spectrum of students can be reached. The University may have to embrace the use of Netbooks, Internet Cafés around the country and other projects that will bring access to the technologies closer to students. It is clear that the views and circumstances of students need to be taken into account. The second phase of this study – determining which technologies students would want the DMRM to use – is thus an important 'next step' to solving the conundrum of which learning technology to use.

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APPENDIX A

FULL LIST OF TECHNOLOGIES IDENTIFIED BY LECTURERS

	Technologies
1	SMS/MMS (Simple Message Service/Multimedia Message Service)
2	Cellular technology (non-SMS) – eg WAP/mobile web applications
3	Personal Digital Assistant (PDAs – similar to smartphones but without cellular connectivity)
4	CDs and DVDs
5	Learning Management System (LMS) (eg myUnisa)
6	Social networking services (such as Facebook, Twitter, etc.)
7	Automated telephone self-help service (e.g. “If you want ... then press #1”, etc.)
8	Use of webinars/podcasting (short learning videos that are delivered to students via iPod, smart-/ multimedia phones, or online)
9	YouTube (an online video delivery service that can also be viewed on some cell phones)
10	Internet/WWW (websites used to support module information activities, FAQs, simple assessments, MCQs, etc.)
11	Satellite and video conferencing (teleconferencing)
12	Campus radio
13	National radio
14	Blogs (by lecturers)
15	Email (interactive communications between lecturer and student)
16	Chat forums (involving student-to-student and lecturer-to-lecturer communications)
17	Computer simulation and educational gaming (online and offline – CD/DVD based)
18	Departmental software solutions (bespoke programs to assist lecturers in helping students)
19	Interactive TV (eg DsTV)
20	Online teaching (online discussion classes)
21	Keyword search tools
22	E-newsletter/e-magazines (run by lecturers for students)
23	Electronic provision of study materials (e.g. on Flash drives)
24	Automated assessment
25	Webcams to support teaching and communications

Education and learning technologies: the dilemma of distance education

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ABSTRACT

The challenge of the Chair of Department of Marketing and Retail Management (DMRM) is to plan and manage the DMRM in such a way so as to ensure that the department continues to deliver relevant marketing education to students, while still meeting the broader University objectives. This planning and management task needs to take into consideration the challenges facing the DMRM in the delivery of marketing education. One such challenge is to decide on what technology to use to deliver and support learning amongst the DMRM's students. The process of choosing one or more technologies to adopt as a preferred learning technology within the DMRM can either be done by drawing on the current thinking on this topic in the academic literature, by speaking with peers and other educational and technology experts, by asking the lecturers involved in the every-day delivery of this education, or by surveying students themselves. The lecturer is the key driver behind the delivery of education within the DMRM and will be instrumental in the successful adoption of any technology decided upon. Their views were obtained using the Delphi methodology and analysed using Chi-square analysis. The findings suggest that a learning management system is considered by lecturers as the preferred technology to use.

Keywords: learning technologies; higher education; learning management systems (LMS); mega universities

INTRODUCTION

A highly competitive and dynamic educational landscape exists throughout the world, brought about by numerous factors. These factors include the impact of globalisation, the move towards the knowledge society, the current global financial crisis, rising unemployment, the increasing pace of change, and the influence of the internet and other technologies in extending the regional, national and international reach of learning providers (Freedman, 2008; Marginson, 2004). This last-mentioned factor has resulted in educational institutions which previously had a narrow, local focus now expanding their offerings and competing across borders. This has placed increased pressure on educational institutions which were previously protected by geographic distance. This competitive and dynamic educational landscape has resulted in universities and further education and training institutions increasingly competing with each other globally for students (Marginson, 2006). When this situation is combined with the escalating political and business demands being placed on higher educational intuitions to produce qualified graduates (especially in the South African context given the disparity that exists in educational levels between the white and black communities), then the urgency to find workable solutions to improve throughput rates and reduce attrition rates in higher education becomes apparent (Nzimande, 2009). One possible solution is to put technology to work to assist in facilitating the delivery of higher education and to improve and support learning amongst all student groups (Van Dusen, 1997). The conundrum that education providers face is which learning technologies to use in order to extend the reach, quality and success of existing and future educational offerings?

The academic departments within the five main Colleges comprising the University of South Africa (Unisa) serve as the primary academic ‘touch points’ with learners and it is these departments that will ultimately adopt and drive the use of learning technologies within the University. It can be further argued that it is ultimately the lecturers within these departments who will be responsible for the effective implementation of the chosen learning technologies in question. With this in mind, this study attempts to determine the lecturers’ views as to the preferred learning technology to use to serve students within the Department of Marketing and Retail Management (DMRM) at Unisa.

BACKGROUND

Unisa, as a distance learning institution, is one of the world’s largest ‘mega universities’ (Anon, 2005) with a population of approximately 250 000 students (Anon A, 2009). The DMRM is one of six academic departments within the School of Management Sciences, which in turn is one of three Schools within the College of Economic and Management Sciences, the largest College of five within Unisa (Anon B, 2009). The College itself has some 130 000 students across the world.

The challenge of the Chair of Department (CoD) of the DMRM is to plan and manage the DMRM in such a way as to ensure that the DMRM continues to deliver relevant marketing education to all students, while still meeting the broader University objectives. Currently, the DMRM has more than 22 000 module registrations per annum. One of the areas of consideration for the CoD, is the possible use of new technologies to support the learning offerings of the DMRM.

In education, the role of technology has increased dramatically (Blomqvist, Handberg & Naeve, 2003) (Cherwitz & Sanford, 1999). Today, there are many different types of technologies that a University can draw on in order to facilitate the delivery of education to its learners. These technologies range from traditional paper-based learning materials and face-to-face classes, to electronic learning materials, tools and channels such as learning management systems, online technologies, email, mobile technologies, CD/DVD technologies, teleconferencing, interactive TV, radio, personal digital assistants (Engelbreght & Kirchheimer, 2007; Siemens & Tittenburger, 2009). The question arises as to what technology options are available to the DMRM and which of these are the most suitable to be used by the DMRM in servicing its students.

Answering this question can be done by either drawing on the current thinking on this topic in the academic literature, by speaking with colleagues, peers and other experts in the field of education and educational technology, by asking the lecturers who are involved in the every-day delivery of learning to students, or by surveying students themselves. This study focuses on the lecturers’ perspectives. The lecturer, after all, will be the key driver behind the adoption and use of any technology that is decided upon within the DMRM.

With this in mind, the research problem, question and objectives are outlined below. This is followed by a description of the research methodology that was used, as well as the findings and conclusions that can be drawn from these findings.

RESEARCH PROBLEM

While there may be a strong argument supporting the idea that learning should be learner-centric (O'Neil & McMahon, 2003), the reality is that to a large extent it is the academic that takes responsibility for developing the learning content and who is often the key driver behind pursuing and using new technologies for the delivery of education within an academic department. Any research that is aimed at determining the best mix of technologies to use in delivering learning to students therefore needs to take the lecturers' views into consideration.

RESEARCH OBJECTIVE

The objective of this particular study is thus focused on determining the opinions of the lecturing staff within the DMRM as to the most suitable learning technology(ies) to use in delivery learning to students in the distance learning sphere.

RESEARCH QUESTION

This study strives to answer the question as to which new learning technologies are viewed by the lecturing staff within the DMRM as the most appropriate for reaching and serving the Department's learners, as well as the challenges that are facing the implementation of these technologies. The term 'new' is used in conjunction with the term 'technologies' to depict all non-paper-based learning methods. Learning technologies can be defined as various technologies that can be used to deliver, enhance, support and generally facilitate learning to and by students (Williams, 2005).

RESEARCH METHODOLOGY

As was mentioned earlier, this particular study focuses on only one aspect of the broader picture. Ultimately the results of this study will need to be combined with the findings from the other components of the larger study, namely, a survey of students and of the literature). The methodology that was used for this study is based on the Delphi technique. The Delphi technique is an iterative questioning process that serves as a way of obtaining a collective view from individuals where there is no or little evidence and where opinion is important (Thangaratinam & Redman, 2005).

A total of fourteen junior and senior lecturers were involved in the study; the authors did not contribute in any way to the input and resigned themselves only to providing written explanations introducing each step of the process and recording the results. Of course, the collegial nature of this research could have had some influence on promoting participation which one or more lecturers may otherwise not have agreed to. In addition, this factor might also have contributed to more scathing input than might otherwise have been the case (however, this is not necessarily a negative aspect). The process that was followed in the gathering of data can be outlined as follows:

- *Step 1:* All the lecturers in the DMRM were initially asked to identify at least five different new learning technologies that they believed would help support the learning offerings of the DMRM within the distance learning context. At the same time, they were asked to identify the major challenges (advantages and disadvantages) of implementing these technologies, and to suggest what might be done to overcome any potential problems identified in using the technology.
- *Step 2:* The responses from the various lecturers were then combined into a single table with common technologies and challenges clustered together in the table only once. There were a number of commonalities identified by the various lecturers, but there were also a number of unique challenges identified by some of the lecturers that were not mentioned

by their colleagues. This ensured that a broader spectrum of challenges was identified in association with most of the technologies in question; more so than might have been the case had the research only been conducted on a one-on-one basis. It should be mentioned, however, that several technologies were identified without any challenges having been highlighted for the technologies in question.

- *Step 3:* This single table was then resent to all the lecturers, asking them to 'fill the gaps' especially where no challenges had been identified or where they felt there may be some shortcomings. Once again, the answers were synthesised into a single – but now expanded and more complete – table. This table is quite extensive and too long to serve as an attachment to this article. It can therefore be accessed at http://www.cbothma.co.za/ME/list_of_technologies.htm. A shortened list highlighting just the technologies without the additional explanation of the benefits/drawbacks is attached as Appendix A.
- *Step 4:* The next step involved listing the various technologies identified by the lecturers – 24 in all –in the form of a checklist (without the accompaning explanations and challenges) and then asking the lecturers to identify their preferences for the ten most important or relevant technologies (i.e. they simply had to tick the ten technologies of their choice and not rank them). A frequency table was created and the ten most popular technologies were thus identified.
- *Step 5*: Using this revised list of the ten most popular technologies, the lecturers were then asked to prioritise the list from one to ten, with one being the most important and ten being the least important. Once again, a new list was developed based on the mean score for the priorities indicated for each technology across all the lecturers concerned. From this revised and prioritised list, the five most important technologies were then identified. Table 1 outlines the findings from steps 3 to 5.
- *Step 6:* Finally, the lecturers were asked to evaluate the five technologies in a pairwise fashion. In each instance, the lecturer was requested to compare the two technologies involved in each pairwise comparison and to allocate a score of '1' to the technology that they thought was the most appropriate of the two, with a '0' being allocated to the alternate (or least preferred) technology. In the case where both technologies were considered equally important, a score of '0' was allocated to both. These findings were then transposed into a data table and analysed statistically using the Chi-square method. The results of these statistical analysis findings are outlined in the findings below (see Tables 2-3 below).

Comments on the methodology

Although it might appear tedious, the iterative Delphi methodology proved effective in ensuring that each lecturer (from junior to senior) had an opportunity to contribute to the overall decision-making in selecting the most suitable technology(ies) for the DMRM to use. Not only did everyone have an opportunity to contribute, but they could also build on the comments that went before (much like with sharing ideas in a focus group). What is more, with each iteration lecturers became more familiar with the technology options that had been identified and with the terminology being used.

The iterative nature of the Delphi technique also gave everyone a chance to think about their options. This could have been achieved by means of a focus group, but it is thought likely that (a) the junior lecturers would have 'stood aside' for the senior lecturers and (b) the less vocal lecturers might not have had a chance to contribute to the discussion.

In gathering and consolidating the

feedback from lecturers about the various learning technologies that the DMRM could use, it also became apparent that it is problematic to view all of these technologies as being of the same type. Some technologies, for example, are primarily transmission channels or environments (the internet, cellular technology and radio), while others are tools that reside within or 'ride' on top of these channels (such as instant messaging, SMS and blogs). Some technologies are hardware-based (the internet), while others are software-based (learning management systems).

Furthermore, many of these technologies overlap with each other. Users may speak of learning management systems, web-based learning, online learning and other such phrases, all as being uniquely different things but essentially they are all similar, if not the same. This semantic confusion played a part in this study with several lecturers identifying some technologies as uniquely different when in fact they are essentially the same. In some instances this was overcome in the process of consolidating the technologies identified by each lecturer into a single table by the authors. Clearly common technologies (albeit phrased or termed differently by a lecturer) were grouped together under a common heading. Nevertheless, some of the listed technologies still overlap with one another – for example, web-based learning versus a learning management system, and webinars versus YouTube.

It is also true that many if not most of these technologies are linked to the internet and as such can together be described as online technologies. Nevertheless, even within the online realm, there are a number of internet-based sub-technologies that can be used separately or together in order to serve learners (for example, websites, discussion forums, webinars, instant messaging, email). Going forward, it is thought prudent to consider these sub-technologies separately.

A final comment about the methodology relates to the issue of the distance education environment. The lecturers were asked to consider technologies that were suitable to this environment. The reality, however, was that as all of the lecturers work within this environment, this is the only frame of reference that they have to judge from. They were not able to practically compare or differentiate these technologies between residential and distance education institutions.

RESEARCH FINDINGS

The research findings can be divided into three main groups:

1. The initial list of 25 technologies identified by the lecturers (Appendix A). A more complete list outlining the associated benefits and drawbacks of each technology can be found at: http://www.cbothma.co.za/ME/list_of_technologies.htm
2. The top ten technologies and their respective rankings as identified by the lecturers (Table 1).
3. The results of a statistical analysis of the pairwise comparisons of the top five technologies undertaken by the lecturers. This resulted in a total of $n(n-1)/2$ 5 10 comparisons (where n equals the number of variables, in this case, the number of technologies, namely five). The results of this analysis are outlined in Tables 2-3 below.

Ranking the top ten technologies

Table i below highlights the top ten technologies selected by the lecturers and provides a mean ranking score for each technology where a lower value represents a more preferred technology. These rankings represent the outcome of steps 4 and 5 in the research methodology.

Table 1: Ranking and weightings of top ten technologies*

OVERALL RANK	PROPOSED TECHNOLOGY	MEAN RANKING**
1	Learning Management System	1.9
2	CD/DVD technologies	5.0
3	Email	5.6
4	Web-based learning sites	5.7
5	Automated telephone self-help services	5.7
6	SMS/MMS	5.8
7	Satellite/video/teleconferencing	6.0
8	Online discussion classes	6.0
9	Webinars/podcasting	6.1
10	Cellular/mobile technology	7.2

* The technologies in bold are the 5 selected technologies for further analysis
** Lower values 5 'more preferred', while higher values 5 'less preferred'

What the Table 1 highlights is the importance that lecturers attached to the use of a Learning Management System (LMS) as their preferred technology. This issue is discussed in more detail in the conclusion section. Although not confirmed statistically at this point, it is clear that the mean ranking score for the LMS appears significantly different from the ranking score achieved by each of the other nine technologies. The mean ranking score was calculated on the basis of the mean or average ranking that the lecturers gave to each technology, where 1 5 top or 'most preferred' and 10 5 bottom or 'least preferred'. The next eight technologies following the LMS were all very similar in their mean ranking scores. The last-mentioned technology – namely cellular/mobile technology – was interestingly enough not considered very important at all, with a mean ranking score of 7.2, which sets it somewhat apart from the other top ten technologies.

The top five technologies (highlighted in bold in Table 1 and located above the dotted line) are examined in more detail as part of step 6 of the research methodology, with the findings presented in tables 2 and 3 below. The question arises as to why technologies numbers 6 to 9 were not included in the last part of the analysis (namely, the pairwise comparisons). The reason is (a) that this study is attempting to focus in on the top one or two technologies (and is thus not as concerned with the 'less preferred' technologies), and (b) undertaking a pairwise evaluation of all ten technologies would have resulted in lecturers having to consider 45 different combinations – an onerous task. The greater the number of comparisons, the less accurate the comparisons become, simply because respondents are lulled into making impulsive choices.

Selecting the preferred technology

In step 6, the study expands on what has gone before by asking lecturers to consider the five technologies identified in Table 1 above, in a pairwise process. A frequency count of all of the preferred technologies

Table 2: Descriptive statistics of the data obtained from the pairwise comparisons

Variables	F	Mean	Std. Deviation	Min	Max	Expected F	Observed F (0)	Observed F (1)	Residual
CD/DVD	52	.3654	.48624	0	1	26	33	19	-7.0
AUTO/TEL	52	.3846	.49125	0	1	26	32	20	-6.0
WEB	52	.4615	.50338	0	1	26	28	24	-2.0
EMAIL	52	.2500	.43724	0	1	26	39	13	-13.0
LMS	52	.7115	.45747	0	1	26	15	37	11.0

from each pairwise comparison was then captured in a contingency table and analysed using a Chi-squared analysis and SPSS. Tables 2 and 3 below highlight the results of this analysis. The purpose of this analysis is to target the preferred learning technology(ies).

The above descriptive statistics reveal that there were 52 frequency counts (F) of either a '0' or a '1' for each of the five variables. The 52 is computed on the basis that there were 13 respondents that completed four pairwise comparisons for each of the variables; thus 13 × 4 = 52. For each of these variables the mean is calculated on the basis of the observed positive responses (depicted by 1s) divided by F (i.e. 52); thus for variable LMS it is 37/52 = 0.7115. The standard deviation on the other hand is a measure of variability of the population from the mean. A value of .457, for example, suggests that 45.7% of the observations can be found within one standard deviation of the mean – a relatively good percentage suggesting a normal distribution for the observations.

The minimum and maximum values reflect the two possible options that respondents could choose from, where a '1' = "this variable is more important than the alternative" and a '0' = "the alternate variable is more important than this one" or "they are equally important". The expected N (26 for all five variables) suggests that it was expected that half of the responses would be 0s and the other half 1s.

The observed F(0) reflects the number of actual '0s' allocated by the lecturers for the variable in question, while the observed F(1) reflects the number of actual '1s' allocated by the lecturers for the variable. In the case of the LSM variable, for example, there were 15 '0s' and 37 '1s'. Finally, the residual represents the deviation from the expected F (of 26). For LSM, for example, the residual is calculated as follows: 37 – 26 = 7. If the residual is a positive value, then this reflects a preferred technology (1s > 0s), while if the residual is negative this represents an indifferent or lesser preferred technology (0s > 1s).

Table 3 on the following page highlights the primary Chi-square parameters identified by this analysis.

The purpose of the Chi-square analysis is to determine whether the observed frequencies (counts) differ markedly from what we would expect by chance (Anon C, 2009). The Chi-square formula is (Schmidt, 2009):

$$X^2 = \frac{\sum(F_o - F_e)^2}{Fe}$$

where X^2 = Chi-square
F_o = observed frequencies
F_e = expected frequencies

In the Table 3, df represents the degrees of freedom (i.e. 1) and at df(1), the critical Chi-square value (X^2_{crit}) is 3.84 corresponding to a p-value of 0.05. Any calculated value (X^2_{calc}) above 3.84 (X^2_{crit}) suggests that the variable in question is significant. The critical value was determined from a look-up table (Steyn, Smit, Du Toit & Strasheim, 2003).

The above statistics reflected in table 3 thus indicate that:

- The three variables CD/DVD, AUTO/TEL

Table 3: Chi-square test statistics

	CD/DVD	AUTO/TEL	WEB	EMAIL	LMS
Chi-square (X^2calc)	3.769*	2.769*	0.308*	13.000*	9.308*
df (degrees of freedom)	1	1	1	1	1
Asymp. significance	0.052	0.096	0.579	0.000	0.002

* Zero cells have frequencies less than 5. The minimum expected was 26.

and WEB do not stand out as significant technologies in the context of this study, as their calculated Chi-square values do not exceed the critical Chi-square value. *(Clearly, they are still technologies worth considering but do not represent the technology of choice.)*

- Both the LMS and EMAIL stand out as significant variables in as far as this study is concerned. This is confirmed by the LMS's Chi-square of 9.308 and the EMAIL's Chi-square of 13.000 both of which are *significantly* higher than the critical Chi-square value.
- In the case of the asymptotic significance value, all three values for CD/DVD, AUTO/TEL and WEB are greater than p50.05, suggesting that they *are not* significant, while in the case of both EMAIL and LMS the asymptotic value is less than p50.05, indicating that they are significant. This supports the Chi-square value indicating that these two technologies are significant.
- The sign of the residual value gives an indication of direction of the significance, suggesting that that the preferred learning technology of choice for staff is the LMS, while EMAIL is equally so, not the technology of choice for staff (reflected in a high chi-square value of 13.000, but with a minus sign associated with the residual value corresponding to the '1s') (Table 2).

CONCLUSIONS AND RECOMMENDATIONS

Given the abovementioned findings, the following *main* conclusion can be drawn:

Lecturers support the adoption of an LMS as the preferred learning technology

The lecturers interviewed overwhelmingly supported the use of an LMS as their preferred technology of choice. This is a very interesting finding. Unisa has an excellent LMS in place called *myUnisa* (Unisa Learning Management System, 2009). It is a powerful online tool that is available to all registered students. Unisa is constantly working on improving this system. The interesting fact is that most lecturers within the DMRM do not use myUnisa. The findings thus suggest that although lecturers are reluctant, unwilling or unable to use an LMS, they do appear to recognise the value that it brings to learning and as a means of supporting the student.

The findings might also mean that myUnisa is all that lecturers are familiar with (within their academic sphere) and their selection of an LMS as the preferred learning technology of choice is based on this familiarity. It could also mean that because the University has been pressing for the use of the LMS amongst academics (even making its use part of the individual's performance management agreement), lecturers feel obliged to recommend its use.

It is also interesting to note that web-based learning also appeared in the list of top five technology choices. Bearing in mind that the myUnisa LMS is essentially a web-based learning system, there is arguably a serious overlap between these two choices. This supports the view that lecturers consider the web (or the idea of 'online learning' as embodied in an LMS) as the route to go.

Another suggestion might be that lecturers feel that students are facing a medium-overload (i.e. the use of too many technology channels), which might impact on the effectiveness of many of these technologies, especially if they are used separately. An LMS, on the other hand, has the potential to incorporate many if not most of these technologies (such as webinars, blogs, email, SMS, discussion forums) into a single interface or online environment and could, therefore, serve as 'home' or 'base' for many of the other suggested technologies. This would make it a 'one-stop shop' of choice.

Recommendations

If it is accepted that the LMS is the technology of choice, then it is recommended that the CoD invest as much time and effort in pursuing the use of this technology within the DMRM. Perhaps the training of lecturers on how to use the LMS might be one option and/or the CoD might seek out new ways of using the features of the LMS in support of the DMRM's teaching efforts. Where certain tools are thought to be missing, the CoD might even work with the University's ICT Department, to serve as a test-bed for the development of these new tools. Certain policies and guidelines could be documented to assist lecturers in using this technology more effectively. Additional staff or assistants could be appointed to take charge of many of the administrative aspects of using this technology. The proposed second-phase of this research study that will examine the students' opinions of the best technologies to use, will delve deeper into their view and acceptance of an LMS.

In summary, the conundrum is becoming clearer. The learning technology of choice from the perspective of lecturers is the LSM (myUnisa) and the DMRM should invest effort in embracing this technology within the Department. But the views of students still need to be understood.

Further conclusions

Besides for this main conclusion outlined above, which is what the study set out to determine, a number of other secondary conclusions can be drawn based on the information obtained from lecturers (much of which is outlined in the table available at http://www.cbothma.co.za/ME/list_of_technologies.htm). These conclusions are briefly outlined below:

- *Why is email not popular?* One suggestion is that lecturers are probably averse to email because it represents work and an intrusion in their already busy day.
- *Why automated telephone self-help services?* It seemed an unusual technology for lecturers to suggest. It is believed that the answer lies in the fact that lecturers see this technology as helping them deal with the deluge of incoming telephone calls received daily from students.
- *Why CD/DVD technologies?* – The timeous delivery of study material is a recurring problem in the distance learning environment and a problem that students often approach lecturers about (albeit that it is an administrative matter). CD/DVD technology is seen as a means of study material delivery.
- *Technologies represent more work* – One of the side issues that came out of this study is that the implementation of these technologies represents more work. Lecturers already feel overburdened, and having to embrace a new learning technology in their already busy day is very daunting. This suggests that there should be a focus on only one technology such as the LMS, which in any case is an all-encompassing technology.
- *Lecturers' awareness of learning technologies is limited* – Another issue that was mentioned was that lecturers felt themselves to be out of touch or unfamiliar with many of the new technologies available on the marketplace. In fact, they felt that students were in some instances more familiar with these technologies than

the lecturers themselves. Technology was thus seen as a barrier to effective teaching from the lecturer's perspective.

- *Unisa is driving technology adoption*. There was also a feeling that the University (in particular, the ICT Department) was driving the adoption and implementation of new learning technologies within the broader University context, with lecturers expecting to comply and 'fit in'. This typical 'top down' approach does not encourage the use of technology amongst lecturers. In fact, it may instead create a level of resistance amongst lecturers.
- *What about the students?* Most of the technologies suggested by lecturers are either web-based and/or they require the use of a computer. Unisa has a relatively poor student population, many of which come from disadvantaged backgrounds. These technologies may be out of their reach. This potential problem needs to be considered carefully to see how the broadest spectrum of students can be reached. The University may have to embrace the use of Netbooks, Internet Cafés around the country and other projects that will bring access to the technologies closer to students. It is clear that the views and circumstances of students need to be taken into account. The second phase of this study – determining which technologies students would want the DMRM to use – is thus an important 'next step' to solving the conundrum of which learning technology to use.

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APPENDIX A

FULL LIST OF TECHNOLOGIES IDENTIFIED BY LECTURERS

	Technologies
1	SMS/MMS (Simple Message Service/Multimedia Message Service)
2	Cellular technology (non-SMS) – eg WAP/mobile web applications
3	Personal Digital Assistant (PDAs – similar to smartphones but without cellular connectivity)
4	CDs and DVDs
5	Learning Management System (LMS) (eg myUnisa)
6	Social networking services (such as Facebook, Twitter, etc.)
7	Automated telephone self-help service (e.g. "If you want ... then press #1", etc.)
8	Use of webinars/podcasting (short learning videos that are delivered to students via iPod, smart-/ multimedia phones, or online)
9	YouTube (an online video delivery service that can also be viewed on some cell phones)
10	Internet/WWW (websites used to support module information activities, FAQs, simple assessments, MCQs, etc.)
11	Satellite and video conferencing (teleconferencing)
12	Campus radio
13	National radio
14	Blogs (by lecturers)
15	Email (interactive communications between lecturer and student)
16	Chat forums (involving student-to-student and lecturer-to-lecturer communications)
17	Computer simulation and educational gaming (online and offline – CD/DVD based)
18	Departmental software solutions (bespoke programs to assist lecturers in helping students)
19	Interactive TV (eg DsTV)
20	Online teaching (online discussion classes)
21	Keyword search tools
22	E-newsletter/e-magazines (run by lecturers for students)
23	Electronic provision of study materials (e.g. on Flash drives)
24	Automated assessment
25	Webcams to support teaching and communications

Paying too much and being happy about it: existence, causes and consequences of tariff-choice biases

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ABSTRACT

A common assumption underlying the analysis of consumers' choice between optional tariffs is that consumers choose the tariff that maximizes consumer surplus and, thus, the tariff that leads for a given amount of usage to the lowest billing rate. Yet, there is evidence that many users prefer a flat rate even though their billing rate would be lower on a pay-per-use tariff (flat-rate bias) and some users prefer a pay-per-use tariff even though they would save money on a flat rate (pay-per-use bias). The authors conduct four empirical analyses based on three different data sets. They show that the flat-rate bias is more important and has a greater regularity and time-persistence than the pay-per-use bias. They classify potential causes of the flat-rate bias as "insurance effect," "taxi meter effect," "convenience effect," and "overestimation effect" and show that the insurance, the taxi meter and the overestimation effect lead to a flat-rate bias. They provide evidence that underestimation of usage is a major cause of the pay-per-use bias. They show that the flat-rate bias does not significantly increase customer churn and thus results in a short- and long-term profit increase. In contrast, the pay-per-use bias largely increases churn so that the additional short-term profit is in the long-term offset by higher churn.

Keywords: Nonlinear Pricing, Flat-Rate Bias, Pay-per-Use Bias, Consumer Behavior, Internet

INTRODUCTION

By increasingly adopting technologies such as the Internet and smart cards, many companies can now easily monitor consumers' usage volumes. This allows them to offer sophisticated nonlinear pricing schemes, ranging from pure pay-per-use tariffs to flat rates. Consumers, for example, can choose between optional tariffs for getting access to the Internet, online services, local, long distance and wireless telephone, cable, libraries, and even amusement parks or health clubs. Nonlinear pricing schedules have received great attention in the literature, in particular from researchers considering welfare theoretical problems (for a review see Sundararajan 2004). Their fundamental assumption is that consumers have no tariff-specific preference and maximize their consumer surplus. Consumers choose, at least on average over time, the tariff that leads for a given amount of usage to the lowest billing rate. However, studies on telephone service (e.g. Kling and van der Ploeg 1990; Kridel, Lehman, and Weisman 1993;Train,McFadden,andBen-Akiva 1987) and health club tariff choice (DellaVigna and Malmendier 2005; Nunes 2000) show that consumers that would save money by paying per use often prefer a flat rate to a pay-per-use tariff. This preference has been dubbed the "flat-rate bias" (Train 1991). Fewer studies observe a "pay-per-use bias", i.e., a preference for a pay-per-use tariff even though a flat rate would be cheaper (Kridel, Lehman, and Weisman 1993; Miravete 2002a). The existence of both flat-rate and pay-per-use bias contradicts the assumption that consumers choose for a given amount of usage the tariff that leads to the lowest billing rate.

Evidence of existence, causes, and consequences of tariff-choice biases is scarce. There are only few insights on the share of consumers with flat-rate and pay-per-use biases, the magnitude of these biases as well as on the regularity and time-persistence of tariff-choice biases. In addition, the effects of potential causes of tariff-choice biases have not been explored comprehensively. Likewise, little research addresses the impact of tariff-choice biases on tariff switching and churn as well as on customer profitability and customer lifetime value.

Consequently, the objective of this paper is to analyze the existence, causes and consequences of tariff-choice biases. We review current evidence of tariff-choice biases and potential causes of the flat-rate bias. We empirically demonstrate the existence of tariff-choice biases based on transactional and on survey data in the context of Internet access. Furthermore, we use transactional data to evaluate bias regularity and time-persistence. We use multi-item scales to simultaneously measure the impact of the four potential causes on flat-rate and pay-per-use bias in two surveys. In the second survey, we combine survey and transactional data to validate the results of the first survey and measure real-world behavior. Finally, we analyze the consequences of tariff-choice biases on tariff switching and churn as well as on customer profitability and customer lifetime value.

The remainder of the article is organized as follows. First, we review previous work on existence, causes and consequences of tariff-choice biases. Next, we report the results of four empirical analyses. Analysis 1 provides evidence of the existence of tariff-choice biases. Analysis 2 focuses on causes of the flat-rate bias. Analysis 3 validates causes of the flat-rate bias and explores causes of the pay-per-use bias. Analysis 4 examines consequences of tariff-choice biases. We conclude by summarizing our results, proposing implications, and discussing the limitations of our work.

RESEARCH SETTING

In this section we provide the theoretical background for the empirical analysis of tariff-choice biases. We review previous work on the existence of tariff-choice biases and present potential causes of flat-rate and pay-per-use bias. Last, we comment on previous work related to the consequences of tariff-choice biases.

Existence of tariff-choice biases

Train et al. (1987) are among the first to report evidence of the flat-rate bias based on the analysis of households' choices among telephone service options. The authors find a tariff-specific constant in a logit model that shows a preference for a flat rate vs. a pay-per-use tariff. Other researchers (Hobson and Spady 1988; Train, Ben-Akiva, and Atherton 1989; Kling and van der Ploeg 1990; Mitchell and Vogelsang 1991) also find a tendency of consumers to choose a flat rate that is not explained by actual usage. In addition to a flat-rate bias, Kridel, Lehman, and Weisman (1993) and Miravete (2002a) also observe the pay-per-use bias, i.e. consumers that choose a pay-per-use tariff even though they would have paid less under a flat rate. Kridel, Lehman, and Weisman (1993) find that nearly 65% of customers that have selected flat rates would save money had they purchased local measured service. Only 10% of customers that selected local measured service would benefit from switching to the flat rate. The authors report an average magnitude of the flat-rate bias of $9.49. Studies of other products or services, such as grocery delivery or food during a cruise, confirm the flat-rate bias but rely on survey data (Nunes 2000; Prelec and Loewenstein 1998). In contrast to those results, Miravete (2002a) reports that only 12% of customers wrongly choose the flat rate but 67% wrongly choose measured service. He finds that flat-rate and pay-per-use bias often fall below $4.

Even though researchers use different methods to measure a flat-rate bias, most find a tendency of consumers to choose a flat rate or a tariff with a higher fixed fee and allowance that is not explained by usage volume. Yet, current studies do not analyze in detail: (i) the relative importance of flat-rate and pay-per-use biases, (ii) the time persistence and regularity of tariff-choice biases, and (iii) the additional expenditures consumers incur due to tariff-choice biases.

Causes of tariff-choice biases

Much behavioral research focuses on how consumption is affected, e.g., by sunk cost (Arkes and Blumer 1985; Thaler 1980; Thaler 1985), prior payment mechanisms (Soman 2001), bundling (Soman and Gourville 2001), timing of payment (Gourville and Soman 1998) or purchasing (Wertenbroch 1998). Little research has been conducted on what affects the choice of a tariff apart from expected consumption. In addition to behavioral work by Nunes (2000) and Prelec and Loewenstein (1998) economists working on telephone service usage examine causes of tariff-choice biases (Kling and van der Ploeg 1990; Kridel, Lehman, and Weisman 1993; Train, Ben-Akiva, and Atherton 1989). To allow for a more comprehensive analysis we classify motivational and cognitive explanations into four distinct causes: the "insurance effect", the "taxi meter effect", the "convenience effect", and the "overestimation effect".

Insurance effect: Consumers may choose a flat rate in order to avoid variation in their monthly billing rate. Risk-averse consumers who cannot predict their future demand exactly can choose a flat rate to insure against the risk of high costs in periods of higher than average usage (Train 1991; Miravete 2002b; Winer 2005). In addition, loss aversion could affect tariff choice if the negative value attributed to losses relative to the price of the flat rate is higher than the positive value attributed to a gain of the same amount (Kahneman and Tversky 1979; Tversky and Kahneman 1991). Kridel, Lehman, and Weisman (1993) argue that there is an option value of the flat rate, which is not related to the actual use of the service. When estimating penetration of extended area service, Kridel, Lehman, and Weisman (1993) find an option value of $9.49. Train et al. (1989) claim that their results of the analysis of telephone service show evidence of the insurance effect. However, Nunes (2000) does not find a correlation between tariff choice and each respondent's level of risk aversion measured by a risk aversion coefficient.

Taxi meter effect: A taxi meter effect can be observed if consumers enjoy their usage more on a flat rate than on a pay-per-use tariff. For example, the ticking of the taxi meter reduces the pleasure of a taxi ride. Mental accounting assumes that consumers dispose over mental accounts and budgets (Heath and Soll 1996; Shefrin and Thaler 1992; Thaler 1985). They attribute the disutility of payment for a good directly to the utility derived from its consumption (Prelec and Loewenstein 1998; Soman 2001). Paying per use lessens the joy from consumption, as the cost and thus the pain of paying are attributed to the consumption at the time of usage. In contrast, paying a flat fee decouples consumption from payment as the costs are mentally prepaid, e.g. at the beginning of each month. Thus, usage which has been paid for beforehand can be enjoyed as if it were free (Prelec and Loewenstein 1998; Thaler 1999). Prelec and Loewenstein (1998) ask people whether a person would enjoy himself more when paying a fixed fee or being charged for actual use and find that for most people the pleasure would be greater with a flat rate than with a pay-per-use tariff.

Convenience effect: Consumers might feel choosing between optional tariffs is inconvenient and try to avoid the effort of identifying alternative tariffs and calculating the respective expected billing rate (Winer 2005). In order to minimize information cost they might choose the tariff that seems to be the "default tariff", i. e., the tariff they are accustomed to choosing (Train 1991). If this tariff is a flat rate, a flat-rate bias can result from the convenience of not having to search for the least costly tariff. When calculating consumer surplus for flat rate and usage-based pricing, Kling and van der Ploeg (1990) capture a bias towards flat rates in a parameter that measures habit inertia to switch tariffs. They also find that households that have not explicitly examined the cost difference under different tariffs are more likely to choose the flat rate.

Overestimation effect: Consumers may overestimate their demand for a good, e.g., due to producer advertising (Mitchell and Vogelsang 1991). Nunes (2000) suggests that consumers overestimate the likelihood of using more than the breakeven volume of two optional tariffs. He compares the subjective likelihood of using more than the breakeven volume with the subjective likelihood of using less than the breakeven volume. This ratio is calculated as the difference of the highest expected usage and the break-even usage divided by the difference of the break-even usage and the lowest expected usage. The subjective likelihood of using more than the breakeven volume increases with the ratio. Thus, consumers that perceive maximum and minimum usage as particularly high are more likely to choose a flat rate. Nunes (2000) also provides empirical evidence of the overestimation effect.

Conclusion: Even though some research has empirically examined causes of tariff-choice biases, results do not provide a comprehensive picture. Each study focuses on different causes and neither measures empirically the impact of all causes at a time. Thus, comparing results from different studies is difficult. Studies using transactional data only allow limited conclusions on consumers' attitudes so that some of the results might also be due to other effects than the stated ones. In addition, studies on the overestimation effect do not measure whether and how much consumers overestimate their usage in real life.

Pay-per-use bias: Research on causes of the pay-per-use bias is limited because the pay-per-use bias has hardly been observed. Train (1991) suggests that a risk-averse consumer who does not know her future income might prefer a pay-per-use tariff even if this is on average more costly than a flat rate. Empirical results have not been provided.

Consequences of tariff-choice biases

Little research addresses the consequences of tariff-choice biases, in particular tariff switching and churn and the impact on customer profitability and customer lifetime value. Miravete (2002a) reports that customers whose behavior entails either flat-rate or pay-per-use biases also have a tendency to switch to the cheapest tariff, even in response to small differences in cost. However, due to the quasi-experimental setting, consumers were particularly aware of choosing the least costly tariff. For health clubs DellaVigna and Malmendier (2005) find that customers with a flat-rate bias delay contract cancellation, but the authors do not provide results on tariff-switching. The overall effect of tariff-choice biases on tariff-switching, churn, customer profitability and customer lifetime value has not been examined. In the short term, customer profitability increases. However, if customers churn as a consequence of paying too much, higher short-term customer profitability could be offset in the long run by lower customer lifetime value.

Objectives of the empirical studies

Despite first results on existence, causes, and consequences of tariff-choice biases, more detailed knowledge of tariff-choice biases is required to derive insights on consumer behavior and practical implications. Therefore, the objectives of our empirical studies are to:

(i) Examine whether tariff-choice biases exist, whether they occur in a regular and time-persistent manner, and by how much consumers overpay,
(ii) Test whether taxi meter, insurance, convenience, and overestimation effects simultaneously lead to a flat-rate bias and obtain first indications on causes of the pay-per-use bias,
(iii) Examine whether tariff-choice biases result in higher tariff switching and churn and how this affects customer lifetime value.

We focus on consumers choosing tariffs for getting access to the Internet. The results are based on three data sets: (i) transactional data of a representative sample of 10,882 customers of a European Internet service provider for a sample period of up to 5 months, (ii) a first survey on tariff choices and causes of tariff-choice biases conducted with a convenience sample of 241 MBA students, (iii) a second survey of 1,078 customers of the Internet service provider that provided the transactional data. The responses for 941 customers are matched to their transactions. This allows us to measure tariff-choice biases and the overestimation effect by real-world data. It should provide additional support for the validity of the results and, in addition, avoid common method variance. Common method variance, i.e., the overstatement of the relationship between dependent and independent variables may result when both variables are measured with the same method (Mazursky and Geva 1989; Kline, Sulsky, and Rever-Moriyama 2000).

RESULTS ON THE EXISTENCE OF TARIFF-CHOICE BIASES

Data and method

We first examine the existence of the flat-rate and the pay-per-use bias with transactional data of 10,882 customers of an Internet service provider and then validate the results in a tariff choice experiment.

Transactional data: Customers of the Internet service provider had the choice between three different tariffs for DSL Internet access: (i) Tariff 1 has a fixed fee and a monthly allowance, with a usage price charged per megabyte (MB) transferred for any usage exceeding the allowance. (ii) Tariff 2 has a higher fixed fee and a higher allowance than tariff 1 but the same usage price for usage exceeding the allowance. (iii) Tariff 3 is a flat rate with unlimited usage. Whereas in the United States the flat rate is by far the most common pricing scheme for Internet access, optional tariffs including a usage price or different allowances are common for pricing Internet access in many European countries. All customers can monitor their usage on the provider's Web site.

In this dataset we consider a flat-rate bias to occur if a consumer regularly chooses a tariff with a higher fixed fee and allowance even though she would save money on a tariff with a lower fixed fee and allowance. We observe a pay-per-use bias if a consumer regularly chooses a tariff with a lower fixed fee and allowance, even though she would save money on a tariff with a higher fixed fee and allowance. We use two criteria to empirically determine whether a consumer regularly chooses a suboptimal tariff: (i) The consumer chooses a tariff that does not minimize her billing rate in sum over all billing periods analyzed ("overall wrong"). (ii) The consumer chooses a tariff that does not minimize her billing rate in every single billing period ("always wrong"). Consequently, criterion 2 is more stringent than criterion 1.

Survey data 1: Subjects are asked to imagine that they have an average monthly Internet usage of 30 hours. We vary minimum and maximum usage (minimum: 0 and 20 hours, maximum: 40 and 60 hours) and ask subjects to choose between a flat rate and a pay-per-use tariff in four different situations. This set-up is adapted from Nunes (2000). We divide subjects into two subgroups. For group 1 the flat rate is priced at 30 Euro and the pay-per-use tariff at 1 Euro per hour. Thus, for an average usage of 30 hours the billing rate under both tariffs is equal. If consumers do not have a preference for a flat rate, half of them should choose the flat rate and the other half the pay-per-use tariff. For group 2 the flat rate is priced at 34 Euros, which exceeds the average cost of the pay-per-use tariff. Now, all consumers should choose the pay-per-use tariff unless they have a preference for the flat rate.

Results

Transactional data: The results in Table 1 confirm the existence of the flat-rate bias and to a lesser extent the existence of a pay-per-use bias. The vertical axis lists the chosen tariffs, while the horizontal axis lists the optimal tariff in terms of lowest billing rate. The diagonal thus represents customers who have chosen a tariff that minimizes their billing rate. Consumers in the lower left-hand corner have a flat-rate bias and consumers in the upper right-hand corner have a pay-per-use bias. E.g., according to criterion 1 based on three consecutive months of usage, 48.1% of consumers on tariff 2 have a flat-rate bias and 8.5% have a pay-per-use bias. The share of consumers with a flat-rate bias decreases under criterion 2, but the decline in consumers with a pay-per-use bias is even stronger. This indicates that the flat-rate bias occurs regularly, i.e., each month, whereas the pay-per-use bias occurs only irregularly. The analysis over 5 months shows that according to criterion 1, up to 46.6% of consumers have a flat-rate bias and only up to 5.8% of consumers have a pay-per-use bias. The effect is even stronger for criterion 2 where up to 29.3% of consumers have a flat-rate bias but less than 1% a pay-per-use bias. Criterion 2 thus confirms the regularity of the flat-rate bias and the irregularity of the pay-per-use bias. In addition, the analysis of 5 months indicates that the flat-rate bias is time-persistent whereas the pay-per-use bias seldom persists over a longer time period.

Next, we analyze the magnitude of flat-rate and pay-per-use biases as a percentage of the billing rate for the least costly tariff. We find that more than half of the consumers with a flat-rate bias pay at least 100% more than they would have paid on the least costly tariff. More than half of the consumers with pay-per-use bias pay at least 20% more than on the least costly tariff. This confirms that most consumers do not just deviate slightly from the least costly tariff.

Survey data 1: If there were no tariff-choice biases, we would expect 50% of consumers in group 1 to choose the flat rate. We find that in one setting (minimum usage: 0, maximum usage: 40) 82% of consumers choose a pay-per-use tariff, which indicates a pay-per-use bias. In all other situations more than half of consumers (54%, 71% and 95%) choose a flat rate indicating a flat-rate bias. In group 2, for which the flat rate is more expensive than the pay-per-use tariff, 18%-89% of respondents choose the flat rate and thus have a flat-rate bias. This confirms the previous result that the flat-rate bias occurs more frequently than the pay-per-use bias.

RESULTS ON THE CAUSES OF THE FLAT-RATE BIAS FROM SURVEY DATA

In this section, we aim to test whether taxi meter, insurance, convenience, and overestimation effects simultaneously lead to a flat-rate bias.

Data and method

Taxi meter, insurance and convenience effect: We use multi-item scales to measure the

Table 1: Existence of tariff-choice biases, transactional data

Criterion 1: “Overall wrong”

3 Months		Best Tariff		
		Tariff 1	Tariff 2	Flat Rate
Chosen Tariff	Tariff 1	93.7%	5.3%	1.0%
	Tariff 2	48.1%	43.4%	8.5%
	Flat Rate	19.8%	8.4%	71.8%

N = 10,882

5 Months		Best Tariff		
		Tariff 1	Tariff 2	Flat Rate
Chosen Tariff	Tariff 1	94.7%	4.7%	0.8%
	Tariff 2	46.4%	47.8%	5.8%
	Flat Rate	14.3%	12.0%	73.7%

N = 7,559

Criterion 2: “Always wrong”

3 Months		Best Tariff		
		Tariff 1	Tariff 2	Flat Rate
Chosen Tariff	Tariff 1	98.7%	1.2%	0.1%
	Tariff 2	37.6%	61.1%	1.3%
	Flat Rate	17.6%	7.8%	74.8%

N = 10,882

5 Months		Best Tariff		
		Tariff 1	Tariff 2	Flat Rate
Chosen Tariff	Tariff 1	99.6%	0.4%	0.0%
	Tariff 2	29.3%	70.4%	0.3%
	Flat Rate	10.5%	10.5%	79.0%

N = 7,559

constructs for the taxi meter, insurance and overestimation effect and in total retain 10 items (see appendix). In a survey of 241 MBA students, we measure attitudes with regard to tariff choice.

Overestimation: As previously explained, consumers in survey 1 choose between a flat rate and a pay-per-use tariff in four different tariff-choice situations with different minimum and maximum amounts of usage (minimum: 0 and 20 hours, maximum: 40 and 60 hours). We assess whether for a constant average usage different amounts of perceived minimum and maximum usage impact tariff choice. Overestimation of usage leads to the flat-rate bias if the likelihood of choosing a flat rate increases with minimum or maximum usage. In addition, we assess whether a higher value of the ratio (maximum usage-breakeven usage) / (minimum usage-breakeven usage) increases the likelihood of choosing a flat rate as proposed by Nunes (2000).

Tariff choice: We analyze whether the constructs for taxi meter, insurance, convenience and overestimation effect explain tariff choice in addition to the price of the tariff.

Results

We use a binomial logit model to estimate the effect of potential causes of the flat-rate bias. Taxi meter effect, insurance effect, convenience effect, minimum and maximum usage and price of the flat rate are the independent variables. The dependent variable is binary with the categories “choice of flat rate “ and “choice of pay-per-use tariff”. The share of correct classification of 74.6% exceeds the maximum-chance criterion (MCC) and the proportional-chance criterion (PCC) (see Table 2). Price has a negative effect on choice of the flat rate. Taxi meter and insurance effect both have a positive impact on choice of the flat rate. Also, higher amounts of minimum and maximum usage and thus the overestimation effect increase the probability of choosing a flat rate. The parameter of the convenience effect is not significant. Given our setting, this is not surprising. In contrast to the U.S. where the flat rate is common for telecommunications services, such as local phone calls or Internet access, Europe does not have a long history of flat rates. Therefore, consumers who feel it is more convenient to choose a “default tariff” might choose either the flat rate or the pay-per-use tariff. Furthermore, we test the stability of our model by eliminating non-significant variables and by splitting our data set according to tariff-choice situations. Table 2 shows that these variations do not have a major impact on the results.

We estimate a similar model with the ratio (maximum usage-breakeven usage) / (breakeven usage-minimum usage) instead of minimum and maximum usage (Nunes 2000) but find that the corresponding result is slightly worse than the previous result (Log Likelihood decreases from 479.224 to -493.129). This indicates that overestimation is best measured with minimum and maximum usage and not with the ratio.

RESULTS ON THE CAUSES OF FLAT-RATE AND PAY-PER-USE BIAS IN REAL-WORLD CHOICES

The objective of our third analysis is to confirm the validity of our previous results by using measures that are partly based on real-world behavior. We match transactional and survey data of customers of the Internet service provider and measure the impact of potential causes on real-world tariff-choice biases. In addition, we measure whether consumers in fact overestimate their usage.

Table 2: Analysis of causes of flat-rate bias, survey data 1

	Model 1	Model 2	Model 3	Model 4
Dependent variable: Choice of flat rate			Tariff choice situations with minimum usage equal to …	
	All tariff-choice situations		0	20
Intercept	-4.435 (1.364) ***	-4.367 (1.357) ***	-8.409 (1.891) ***	2.602 (2.036)
Price flat rate	-0.106 (0.040) ***	-0.105 (0.040) ***	0.031 (0.053)	-0.285 (0.063) ***
Taxi meter	0.332 (0.101) ***	0.328 (0.101) ***	0.405 (0.139) ***	0.265 (0.150) *
Insurance	0.297 (0.104) ***	0.310 (0.101) ***	0.288 (0.136) **	0.330 (0.161) **
Convenience	0.050 (0.097) ***		-0.056 (0.131)	0.186 (0.149)
Usage estimation				
– Minimum	0.109 (0.009) ***	0.109 (0.009) ***		
– Maximum	0.102 (0.009) ***	0.102 (0.009) ***	0.096 (0.009) ***	0.116 (0.015) ***
Log Likelihood	-479.224	-479.357	-263013	-207.369
Nagelkerke R_	41.9%	41.9%	27.8%	32.3%
Correct Classification	74.6%	74.8%	73.9%	79.0%
MMC				
PCC	56.5%	56.5%	62.8%	75.9%
	50.9%	50.9%	53. 2%	63.4%
	N=241·4	N=241·4	N=241·2	N=241·2

*** Significant at 0.01, ** Significant at 0.05, * Significant at 0.1
Standard deviations are reported berween parentheses

Descriptives of scales (mean and standard deviation)

Taxi meter	3.262 (0.963)
Insurance	2.722 (0.975)
Convenience	2.738 (0.858)

Data and method

Subjects and data: About 12,000 customers of the Internet service provider were asked via e-mail to participate in an online survey. Customers could win one of five gift certificates for an online shop. Twenty days after the first notification, the Internet service provider sent a reminder, resulting in 1,078 completed responses. For 941 customers we can match usage data to survey data. We compare customers participating in our survey to customers not participating. Average usage does not differ significantly between the two groups. Participating customers are only 0.9 years younger than customers that did not respond (significant at p<0.01). Thus we conclude that a non-response bias does not affect our results.

Taxi meter, insurance and convenience effect: We measure taxi meter, insurance and convenience effect via the developed multi-item scales (see appendix).

Overestimation of usage: To measure real-world overestimation we combine transactional and survey data. Respondents classify their estimated average, minimum and maximum usage into one of nine categories: “0-1,000 MB,” “1,000-2,000 MB,” “2,000-3,000 MB,” “3,000-4,000 MB,” “4,000-5,000 MB,” “5,000-6,000 MB,” “6,000-7,000 MB,” “7,000-8,000 MB” and “more than 8,000 MB.” Next, respondents’ actual average, minimum and maximum usage is calculated over 3 months. Results are classified into the nine categories. The difference between estimated and actual usage indicates goodness of estimation, a positive value indicates overestimation, a negative value underestimation of usage. For 513 of the 941 respondents we also calculate goodness of estimation based on 5 months of usage. The high correlation between both measures (average usage 0.940, maximum usage 0.924, minimum usage 0.923) confirms its validity.

Tariff-choice biases: We assess the existence of tariff-choice biases in transactional data based on criterion 1 (“overall wrong”) and a period of 3 months. We create a categorical variable with the categories “flat-rate bias,” “pay-per-use bias,” “no bias,” and use a multinomial logit model to measure the impact of the insurance, taxi meter, convenience and overestimation effect on the existence of biases. We also assess the existence of the flat-rate bias based on criterion 2 (“always wrong”). The number of customers with pay-per-use bias according to criterion 2 is too small to perform the analysis. In addition, we measure the impact of taxi meter, insurance, convenience and overestimation effect on the magnitude of flat-rate and pay-per-use bias in tobit models.

Results

We calculate the difference between real and estimated usage to assess the quality of customers’ usage estimation. Results suggest that consumers are particularly bad at estimating their maximum usage which they often overestimate (20% of consumers in tariff 1, 37% of consumers in tariff 2, 31% of consumers in the flat rate). Table 3 shows that the joint multinomial logit model for flat-rate and pay-per-use bias is significant and has a share of correct classification of 81.9% that exceeds the proportional chance criterion (PCC) and the maximum chance criterion (MCC). The significance of the coefficients indicates that taxi meter effect, insurance effect and overestimation of maximum usage explain the real-world flat-rate bias. Again we find that the convenience effect is not significant. The pay-per-use bias is explained by an underestimation of average and maximum usage. To analyze the stability of the results, we omit the non-significant variables from the analysis and conduct separate analyses of the flat-rate and the pay-per-use bias. The binomial logit models 2 to 5 confirm the results for the flat-rate and the pay-per-use bias. Models 6 and 7 assess the flat-rate bias based on criterion 2 and again confirm the results.

Table 3: Causes of flat rate- and pay-per-use bias in real-world tariff choice, 3 months

Model	1: Multinomial logit	2: Binomial logit	3: Binomial logit	4: Binomial logit	5: Binomial logit	6: Binomial logit	7: Binomial logit
Values of dependent variable:	"Flat-rate bias". "pay-per-use", "no bias"	"Flat-rate bias". "no bias"	"pay-per-use", "no bias"	"pay-per-use", "no bias"	"pay-per-use", "no bias"	"Flat-rate bias". "no bias"	"Flat-rate bias". "no bias"
Criterion:	1. "Overall wrong"	1. "Overall wrong"	1. "Overall wrong"	1. "Overall wrong"	1. "Overall wrong"	2. "Always wrong"	2. "Always wrong"
Flat-rate bias							
Intercept	-4.721 (0.553) ***	-4.586 (0.529) ***				-5.477 (0.643) ***	-5.179 (0.610) ***
Taxi meter	0.242 (0.145) *	0.248 (0.144) *				0.306 (0.165) *	0.310 (0.163) *
Insurance	0.358 (0.131) ***	0.379 (0.129) ***				0.303 (0.147) **	0.336 (0.144) **
Convenience	0.098 (0.130)					0.185 (0.143)	
Usage estimation							
– Average							
– Minimum	0.116 (0.125)					0.095 (0.136)	
– Maximum	-0.125 (0.115)					-0.154 (0.125)	
Pay-per-use bias	0.299 (0.069) ***	0.319 (0.062) ***				0.403 (0.074) ***	0.401 (0.055) ***
Intercept	-3.680 (0.612) ***		-2.360 (0.140) ***	-2.296 (0.612) ***	-2.436 (0.137) ***		
Taxi meter	0.270 (0.168)						
Insurance	0.121 (0.155)						
Convenience	0.013 (0.167)						
Usage estimation							
– Average	0.360 (0.162) **				-0.773 (0.100) ***		
– Minimum	-0.143 (0.125)			-0.334 (0.085) ***			
– Maximum	0.578 (0.115) ***		-0.757 (0.087) ***				
Log Likelihood	-476 156	-268.000	-210.638	-256.926	-223.709	-224.055	-225.682
Nageikerke R^2	27.3%	15.5%	25.6%	3.9%	19.8%	20.6%	19.8%
Correct Classification	81.9%	87.9%	91.4%	90.0%	90.5%	90.8%	90.6%
	N=94	N=941 less subjects with flat-rate bias	N=941 less subjects with flat-rate bias	N=941 less subjects with flat-rate bias	N=941 less subjects with flat-rate bias	N=941 less subjects with pay-per-use bias	N=941 less subjects with pay-per-use bias

*** Significant at 0.01, ** Significant at 0.05 * Significant at 0.1

Descriptives of scales (mean and standard deviation) Standard deviations reported between parentheses

Taxi meter	3.548 (0.991)	Insurance	2.805 (1.032)	Convenience	1.968 (0.836)

Table 4: Causes of magnitude of flat-rate and pay-per-use bias in real-world tariff choice, 3 months

Tobit-Model	Model 1	Model 2	Model 3	Model 4
Dependent variable: Criterion:	Magnitude of flat-rate bias 1: “Overall wrong”	Magnitude of flat-rate bias 1: “Overall wrong”	Magnitude of flat-rate bias 2: “Always wrong”	Magnitude of flat-rate bias 2: “Always wrong”
Intercept Taxi	-108.942 (14.697) ***	-106.067 (14.255) ***	-145.906 (21.102) ***	-140.166 (20 .274) ***
meter Insurance	5.948 (3.032) **	6 155 (3.032) **	8.778 (4.041) **	8.999 (4.028) **
Convenience	6.991 (2.811) **	7.564 (2.781) ***	6.632 (3.580) *	7.481 (3.545) **
Usage estimation	2.656 (2.834)		4.517 (3.608)	
– Average				
– Minimum				
– Maximum	2.864 (2.818)		2.957 (3.557)	
Log Likelihood	-2.491 (2.526)		-3.509 (3.179)	
Pseudo-R^2	7 308 (1.667) ***	8.077 (1.292) ***	10.967 (2.206) ***	11.496 (1.768) ***
	-645.149	-646.221	-534.814	-536.275
	6.2%	6,0%	8.5%	8.2%

N=941 less subjects with pay-per-use bias

Tobit-Model	Model 5	Model 6	Model 7	Model 8
Dependent variable: Criterion:	Magnitude of pay-per-use bias 1: “Overall wrong”	Magnitude of pay-per-use bias 1: “Overall wrong”	Magnitude of pay-per-use bias 1: “Overall wrong”	Magnitude of pay-per-use bias 1: “Overall wrong”
Intercept	-90.630 (15.282) ***	-63.418 (6.936) ***	-74.966 (8.410) ***	-64.621 (7.230) ***
Taxi meter	4.818 (3.596)			
Insurance	3.234 (3.310)			
Convenience	1.935 (3.507)			
Usage estimation				
– Average				
– Minimum	-13.148 (3.191) ***	-18.284 (2 177) ***		
– Maximum	5.161 (2.537) **		-10.004 (2.529) ***	
Log Likelihood	-8.436 (2.321) ***			-16.328 (2.053) ***
Pseudo-R^2	-541.989	-556.666	-596.996	-554 .949
	10.5%	8.1%	1,4%	8.4%

N=941 less subjects with flat-rate bias
*** Significant at 0.01, ** Significant at 0.05 * Significant at 0.1

Standard deviations reported between parentheses

The results of tobit models to explain the magnitude of flat-rate and pay-per-use bias in Table 4 confirm previous results. They indicate that taxi meter and insurance effect as well as the overestimation of maximum usage have a positive impact on the magnitude of the flat-rate bias. The magnitude of the pay-per-use bias is explained by the usage estimation. All three measures of usage estimation are correlated and the opposite signs of their parameters indicate multicollinearity (Model 5). However, the separate analyses in models 6 to 8 lead to negative parameter values and indicate that an underestimation of usage is responsible for the magnitude of the pay-per-use bias.

Discussion

Measuring the overestimation effect via two different methods reveals two interesting results. First, the results based on survey 1 confirm that for a given average amount of usage, higher estimated minimum and maximum usage leads to a flat-rate bias. Second, comparison of real and estimated usage indicates that consumers do have imprecise usage estimations, particularly with regard to their maximum usage, which they often overestimate.

Both studies show that consumers have different motivations in addition to price for choosing flat rates. Consumers enjoy their usage more when consumption is decoupled from payment and cost does not increase with additional usage (taxi meter effect). Also, consumers like to avoid variation in the amount of their monthly billing rate. They choose the flat rate to insure against the risk of bill variation (insurance effect). In addition, consumers tend to commit a cognitive error because they overestimate and underestimate their maximum usage. Overestimation leads to a flat-rate bias (overestimation effect), underestimation to a pay-per-use bias. The convenience effect does not lead to a flat-rate bias. However, this result may be influenced by the fact that flat rates are not the dominant tariffs to price Internet access in Europe.

RESULTS ON THE CONSEQUENCES OF TARIFF-CHOICE BIASES

Last, we examine consequences of tariff-choice biases on tariff switching and churn. In addition, we investigate if higher billing rates and, thus, a short-term increase in customer profitability may in the long run be offset by higher customer churn and lower customer lifetime value.

Data and method

Consequences on tariff switching and churn: We use the transactional data of the Internet service provider to calculate tariff-switching and churn probabilities for each of the nine combinations of chosen tariff and best tariff. For each tariff we examine whether tariff switching and churn probabilities of consumers with flat-rate or pay-per-use bias are significantly different from tariff switching and churn probabilities of consumers without tariff-choice biases. To identify factors that impact tariff switching and churn in more detail, we estimate a nested logit model. On the first level, consumers decide to keep or change the current tariff. On the second level, consumers that decided to stay, can either switch to another tariff of the same provider or churn.

Consequences on profit: We calculate profits based on the actual billing rate of consumers and the billing rate they would incur had they chosen the least costly tariff, assuming usage would stay the same. The long-term consequences of higher churn rates on customer lifetime value are measured with a customer migration model (Dwyer 1997). We assume that consumers with tariff-choice biases can choose between keeping the tariff, switching to the least costly tariff or churning, and use the observed switching and churn rates as the probabilities to move from one state to another. We discount future profits by 10% and compare the customer lifetime value for customers with tariff-choice biases to their customer lifetime value in case they had chosen the least costly tariff from the beginning. To analyze the sensitivity of the results, we also apply discount rates of 8%, 12%, and 14%.

Results on tariff switching and churn

In Table 5 we analyze the differences in tariff switching and churn probabilities between consumers with and without tariff-choice biases. For a given tariff the tariff-switching probability of consumers for whom this is the least costly tariff serves as a reference point. We compare the tariff-switching probability of consumers under the same tariff with a flat-rate or a pay-per-use bias to that reference point. According to criterion 1, the tariff-switching probability of consumers in tariff 1 that would pay least in tariff 2 (and thus have a pay-per-use bias) exceeds the tariff-switching probability of consumers for whom tariff 1 is least costly by 220%. The tariff-switching probability of consumers that would pay least in the flat rate (and thus again have a pay-per-use bias) is 240% higher than that of consumers in tariff 1 that do not have a tariff-choice bias. These differences are significant.

Table 5: Tariff switching and churn rates

Tariff switching and churn probabilities compared to least costly tariff

			Criterion 1: "Overall wrong"					Criterion 1: "Always wrong"				
			Best Tariff			Significance		Best Tariff			Significance	
			Tariff 1	Tariff 2	Flat R.	FRB	PPUB	Tariff 1	Tariff 2	Flat R.	FRB	PPUB
Tariff switching	Chosen Tariff	Tariff 1		+220%	+240%		***		+233%	+180%		***
		Tariff 2	+150%		+250%	-	-	+67%		+100%	-	-
		Flat R.	0%'	1%'		-		0%	1.1%'		*	

			Best Tariff			Significance		Best Tariff			Significance	
			Tariff 1	Tariff 2	Flat R.	FRB	PPUB	Tariff 1	Tariff 2	Flat R.	FRB	PPUB
Churn	Chosen Tariff	Tariff 1		+340%	+1040%		***		+650%	+833%		***
		Tariff 2	-25%		+538%	-	-	-50%		+492%	**	***
		Flat R.	+63%	-25%		-		+67%	-100%		-	

*** Difference is significant at 0.01 ** Difference is significant 0.05 N=10,882

* Difference is significant 0.1 - Not significant at 0.1

'Tariff switching rates of flat-rate customers for whom flat rate is least costly tariff are zero, therefore actual tariff-switching rates are listed

Table 6: Models for tariff switching and customer churn

Nested Logit Model Criterion	1: "Always wrong"	2: "Overall wrong"
Level 1	Choices: Keep – Change	
Intercept	-3.034 (0.105) ***	-2.936 (0.112) ***
Existence FRB	0.153 (0.320)	-0.208 (0.467)
Existence PPUB	1.532 (0.128) ***	2.038 (0.287) ***
Magnitude FRB	-0.002 (0.011)	0.004 (0.014)
Magnitude PPUB	0.001 (0.000) *	-0.002 (0.003)
Inclusive value	0.018 (0.122)	0.078 (0.125)
Level 2	Choices: Switch - Churn	
Intercept	2.949 (1.227) ***	2700 (1.243) **
Existence FRB	-1.075 (0.564) **	-1.299 (0.570) **
Existence PPUB	0.543 (0.211) ***	0.826 (0.374) **
Tariff 1	-2.965 (1.228) ***	-2.656 (1.246) **
Tariff 2	-1.615 (1.163) *	-1.242 (1.197)
Log Likelihood	-2,673.211	-2,726.113
Wald-Test	0.000	0.000

*** Significant at 0.01, ** Significant at 0.05, * Significant at 0.1
Standard deviations are reported between parentheses

The overall results for tariff switching with regard to criteria 1 and 2 show that in tariff 1 consumers with pay-per-use bias have a significantly higher probability to switch tariffs than consumers who have chosen the least costly tariff. In tariff 2 the differences in tariff switching probability are not significant. Flat-rate users with a flat-rate bias have a significantly higher tariff-switching probability only according to criterion 2. Thus, both biases lead to a higher tariff-switching probability but this is more likely for consumers with a pay-per-use bias than for consumers with a flat-rate bias.

Similarly, we analyze the probability of consumers to churn. The probability to churn of consumers for whom a certain tariff is the least costly tariff serves as a reference point. We compare the churning probabilities of consumers with tariff-choice biases to that reference point. Results for churn point to a different direction than results for tariff switching: Consumers with flat-rate bias do not have a significantly higher probability to churn. In contrast, monthly churn rates of consumers with pay-per-use bias are 340% - 1040% higher than monthly churn rates of consumers that have chosen the least costly tariff. Therefore, the pay-per-use bias but not the flat-rate bias seems to lead to higher churn.

Table 6 summarizes the results of the nested logit model according to criteria 1 and 2. We find that the existence and the magnitude of the pay-per-use bias but not the flat-rate bias impact the decision to change the current tariff. When deciding whether to switch or to churn, consumers with flat-rate bias rather switch to another tariff of the same provider whereas consumers with pay-per-use bias are more likely to churn. The results are consistent with results obtained when comparing switching and churn probabilities.

Results on company's profit

The flat-rate bias leads to a short-term increase of customer profitability of between 141% (criterion 1) and 182% (criterion 2) and the pay-per-use bias to an increase of between 157% (criterion 1) and 283% (criterion 2). The total impact of tariff-choice biases on the profit from all customers is in the range of 16% (criterion 1) to 30% (criterion 2). The migration model shows an increase in customer lifetime value of customers with flat-rate bias of between 87% (criterion 1) and 135% (criterion 2). Thus, the customer lifetime value of customers with flat-rate bias is substantially higher than the customer lifetime value of customers that have chosen the least costly tariff. In contrast, profits from the pay-per-use bias are in the long term fully compensated by higher churn and switching rates for customers with pay-per-use biases. The impact of the pay-per-use bias on customer lifetime value is -8% (criterion 1) to 2% (criterion 2). Analyzing the sensitivity of the results to a variation of the discount rate from 8%-14% shows that the flat-rate bias increases customer lifetime value by 82% to 98% (criterion 1), or respectively 130% to 145% (criterion 2). In contrast, the impact of the pay-per-use bias is around zero, ranging from -13% to 5% for criterion 1 and -8% to 14% for criterion 2. In total over all customers, both tariff-choice biases together result in an increase of customer lifetime value of 4% (criterion 1) to 7% (criterion 2).

SUMMARY, IMPLICATIONS AND CONCLUSIONS

Our results confirm that for Internet access many consumers choose a flat rate or a tariff with a high allowance even though this is not the least costly tariff. A lower number of consumers choose a pay-per-use tariff even though a flat rate would be cheaper. We show that insurance, taxi meter, and overestimation effects, but not the convenience effect are causes of the flat-rate bias. In addition, consumers overestimate their usage. We also find that consumers with a flat-rate bias are not more likely to churn. We conclude that taxi meter and insurance effects indicate that consumers derive additional benefits from a flat rate that they would not derive from the choice of an alternative tariff. These benefits seem to make consumers happy with their tariff choice, and consequently some consumers pay a flat-rate specific premium.

In contrast, we find that underestimation of usage leads to the pay-per-use bias. We have no indication of tariff-specific benefits of pay-per-use tariffs. Consumers with pay-per-use bias have a higher likelihood to switch tariffs and a much higher likelihood to churn. Therefore, we conclude that they are unhappy with their tariff choice: Once they become aware of their mistake in tariff choice, they are ready to switch to another tariff or churn.

Overall, the results indicate that consumers choose their tariff not only based on the expected billing rate. Rather, consumers prefer flat rates because of tariff-specific characteristics. We belief that these results are true for many other products and services, such as cell phone or fixed-line phone services, access to wireless local area networks, or car rental. For goods where consumers would like to pre-commit to a certain amount of usage, e.g., to exercise twice a week in a health club, pre-commitment might also affect tariff choice (DellaVigna and Malmendier 2005; Nunes 2000; Wertenbroch 1998). Pre-commitment is likely to occur when consumers need to make a considerable short-term investment, e.g., in terms of physical effort, and receive long-term benefits, e.g., in terms of better health. Hence, instead of minimizing their billing rate for a given usage, consumers intend to force themselves to adhere to a certain usage behavior. This might result in an even stronger flat-rate bias. Likewise, pre-commitment to a low consumption, e.g. of cigarettes, might lead to an even stronger pay-per-use bias (Wertenbroch 1998). Whereas pre-commitment to consumption might occur for goods such as health clubs or e-learning, it is unlikely to be important in many other situations such as getting access to the Internet or using cell phones.

The results allow us to derive recommendations for pricing. Companies should carefully consider pricing decisions that may impact flat-rate customers, such as ceasing to offer a flat-rate tariff, or offering the customer the option to be billed for usage according to the least costly tariff. When billing according to the least costly tariff, profits from the flat-rate bias would vanish, whereas virtually no extra profit would be realized from avoiding the pay-per-use bias. Knowing the causes of the flat-rate bias enables managers to affect consumers' tariff-specific willingness-to-pay. They could emphasize the specific value of a flat rate, e.g., the joy and independence in using a flat rate (taxi meter effect) or the reliability of the billing rate (insurance effect). In addition, they could attempt to increase consumers' perceived maximum usage by accenting the different ways a customer could use a product (overestimation effect) (Nunes 2000).

In addition to the negative financial effects of the pay-per-use bias, companies may have to take into account negative reputation effects. High churn rates indicate that customers with a pay-per-use bias are dissatisfied with their tariff choice. They may attribute the wrong tariff choice to the company instead of to their own cognitive mistake. Therefore, companies should encourage new customers to use a flat rate and propose to existing customers with pay-per-use bias to switch them to a tariff with a higher fixed fee.

There are limitations to our work. We have investigated causes of the flat-rate bias that have previously been proposed in literature. We do not, however, conduct an exploratory analysis to identify other potential causes and cannot rule out that other effects might also lead to a flat-rate bias. Our results on causes of the pay-per-use bias are limited to the underestimation effect. Future research could analyze which other effects lead to a pay-per-use bias. In addition, we might underestimate the share of consumers with tariff-choice biases given that we only observe a tariff-choice bias if a consumer has chosen a tariff that does not minimize her billing rate. A consumer might have a preference for a specific tariff. But if her usage is far below the break-even quantity of the next available tariff, this preference might not be strong enough for her to actually choose the next available tariff.

Future research might look at the effect of the introduction or withdrawal of tariffs from a menu of optional tariffs. On the one hand, larger intervals between fixed fees and allowances in a menu of tariffs entail a smaller number of consumers who do not choose the least costly tariff. On the other hand, smaller intervals between fixed fees and allowances mean that consumers' monetary loss due to tariff-choice biases decreases. Yet, we did not measure consumers' tariff-specific willingness-to-pay and thus cannot predict the overall effect of the introduction or withdrawal of tariffs.

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Acknowledgement: Reprinted with permission from the *Journal of Marketing Research* published by the American Marketing Association, Lambrecht & Skiera, May 2006 Volume XLIII and 212-223.

Appendix

Multi-item scales of taxi meter, insurance and convenience effect:

Taxi meter effect

- The flat rate is great because I don't have to worry about the costs.
- It isn't as fun to surf the Internet when I have to think about the costs increasing every minute.
- It's only when I have a flat rate that I can really enjoy surfing the Internet.
- When I'm paying a flat rate, I feel much freer and more relaxed about using the Internet than with a variable rate.

Insurance effect

- For the security of knowing that my Internet access costs will never go above the amount agreed upon, I'm willing to pay a little more than average.
- Even if a flat rate is somewhat more expensive for me than a usage-driven rate, I'm happy because my costs won't exceed the fixed amount.

Convenience effect

- It takes so long to figure out which rate is better that the effort normally isn't worth it.

- It's too much trouble to find out the prices for Internet access.
- The money you can save by picking a better rate than the one you have now doesn't make up for the time and effort involved.
- It takes so long to switch to a cheaper rate that the effort isn't worth it.

Scale development process:

We generate 84 items based on literature review and own judgment. Five professors and Ph.D. students in marketing and behavioral economics conduct a first selection of items. In a pretest, items are purified based on exploratory factor analysis and Cronbach's Alpha. 49 items remain and are further purified in the survey of 241 MBA students (survey 1) through exploratory and confirmatory factor analyses.

In both surveys, goodness of fit measures show good model fit. Discriminant validity is confirmed by the χ^2-test and the Fornell-Larcker criterion. A simultaneous factor analyses confirms that the factorial structure is identical for both groups.

Competing loyalty programs: impact of market saturation, market share, and category expandability

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ABSTRACT

Loyalty programs have become an important component of firms' relationship management strategies. There are now some industries in which numerous rival loyalty programs are offered, inducing intense competition among these programs. However, existing research on loyalty programs has often studied such programs in a non-competitive setting and has often focused on a single program in isolation. Addressing this gap, this research examines the effect of a firm's competitive positioning and market saturation on the performance of the firm's loyalty program. Based on the analysis of firm- and individual-level data from the airline industry, the results indicate that larger firms tend to benefit more from their loyalty program offerings than smaller firms. Moreover, when the product category demand is rigid, the impact of an individual loyalty program decreases as the marketplace becomes more saturated with competing programs. However, when the product category is highly expandable, the saturation effect disappears. Under such situations, loyalty programs can help an industry gain competitive advantage over substitute offerings outside the industry, and multiple programs can effectively coexist even under a high level of market saturation.

Keywords: loyalty programs, market share, market saturation, category expandability, resource-based view

Although loyalty programs have been around for quite some time, consumer enthusiasm to embrace these programs has not abated but rather has rapidly grown over the recent years. From 2000 to 2006, total loyalty program enrolments in the United States increased 35.5% to 1.5 billion (Ferguson and Hlavinka 2007). In parallel to favorable responses from consumers, many firms have installed loyalty programs as a core component of their marketing strategy. This proliferation of loyalty programs reflects a changing market environment that is increasingly characterized by intense competition, more demanding and knowledgeable consumers, and a development toward relationship marketing and customer relationship management in marketing thinking and practice. A consequence of this enthusiasm toward loyalty programs is the increasing competition among rival programs, especially in sectors such as airline, financial services, retail, hotel, and gaming (Ferguson and Hlavinka 2007). In the credit card industry, for example, half of general purpose credit cards offer a reward program (Visa USA Research Services 2006). Similar high adoption rates have been observed in the retail sector across multiple countries (Van Heerde and Bijmolt 2005).

This pervasiveness ofloyalty programs has led some researchers to conclude that such programs may be a necessary cost of doing business in certain industries, especially for new entrants into those industries (Ferguson and Hlavinka 2007; Meyer-Waarden and Benavent 2006). Some also argue that membership in multiple loyalty programs may eventually cancel out the effects of each individual program (Mägi 2003). With a large number of competing loyalty programs, are firms merely giving away profits in a desperate struggle to win business, much like the airline price war in the early 1990s? Or are loyalty programs a viable strategy that can increase revenue potentials, even with competitive offerings in the same market?

Answers to such questions have accumulated in recent years, but the conclusion is still unclear. Not only does the impact of loyalty programs vary across different consumer segments within a firm (e.g., Lewis 2004; Liu 2007), but mixed results are also found for firm-level outcomes (e.g., Leenheer et al. 2007; Mägi 2003; Sharp and Sharp 1997). Consequently, serious doubts have been raised about the value of loyalty programs (Dowling and Uncles 1997; Shugan 2005). Part of the divergence in existing findings can be attributed to a lack of considering the market environment in which loyalty programs operate. Most studies have examined a single program in isolation, when in reality multiple loyalty programs are often offered by competing firms. It is unclear how these competitive forces shape the performance of a loyalty program. This has prompted calls from several marketing scholars for more research on loyalty program competition (Leenheer et al. 2007; Liu 2007; Verhoef 2003).

The current research responds to such calls and contributes to a better understanding of loyalty programs in several ways. First, it examines the interaction among rival loyalty programs and incorporates market- and firm-level factors to explain the varying performances of such programs. Although some research has attempted to explain loyalty program performance through program design factors, few studies have examined how external factors in the environment may affect the success of a program. In this study, we attempt to answer how loyalty program performance is affected by market saturation and the relative size of the offering firm. By considering these competitive factors, this research remedies the tendency to study loyalty program effects in a vacuum void of competitive influences and thus presents a more realistic assessment of such programs.

Because loyalty program initiatives often require costly long-term investments, a more realistic assessment of their potential effects will help firms make more informed decisions and avoid costly mistakes. Second, this research investigates an important contingency factor – category expandability – on the dynamics of competition among loyalty programs. Because individual product categories often do not stand alone in the market but rather compete with substitute products that satisfy similar needs, the expandability of the market boundary can affect the success of loyalty programs (Leenheer et al. 2007). Using a game-theoretic approach, Kopalle and Neslin (2003, p. 22) conclude that a “key factor determining the economic viability of frequency reward programs is the extent to which they can be used to expand the category.” This research extends their work and empirically tests this proposition at the individual level. Finally, because of self-selected enrollment and time trend effects, researchers have argued that neither crosssectional nor longitudinal data alone can establish a clear causal relationship with regard to loyalty programs (Verhoef 2003).

Addressing this concern, the current research combines cross-sectional and longitudinal data from the airline industry and thus controls for the confounding factors in either type of data. It also considers heterogeneity among firms, which allows for a more accurate assessment of loyalty program effects.

CONCEPTUAL BACKGROUND

Defining the Scope of Loyalty Programs

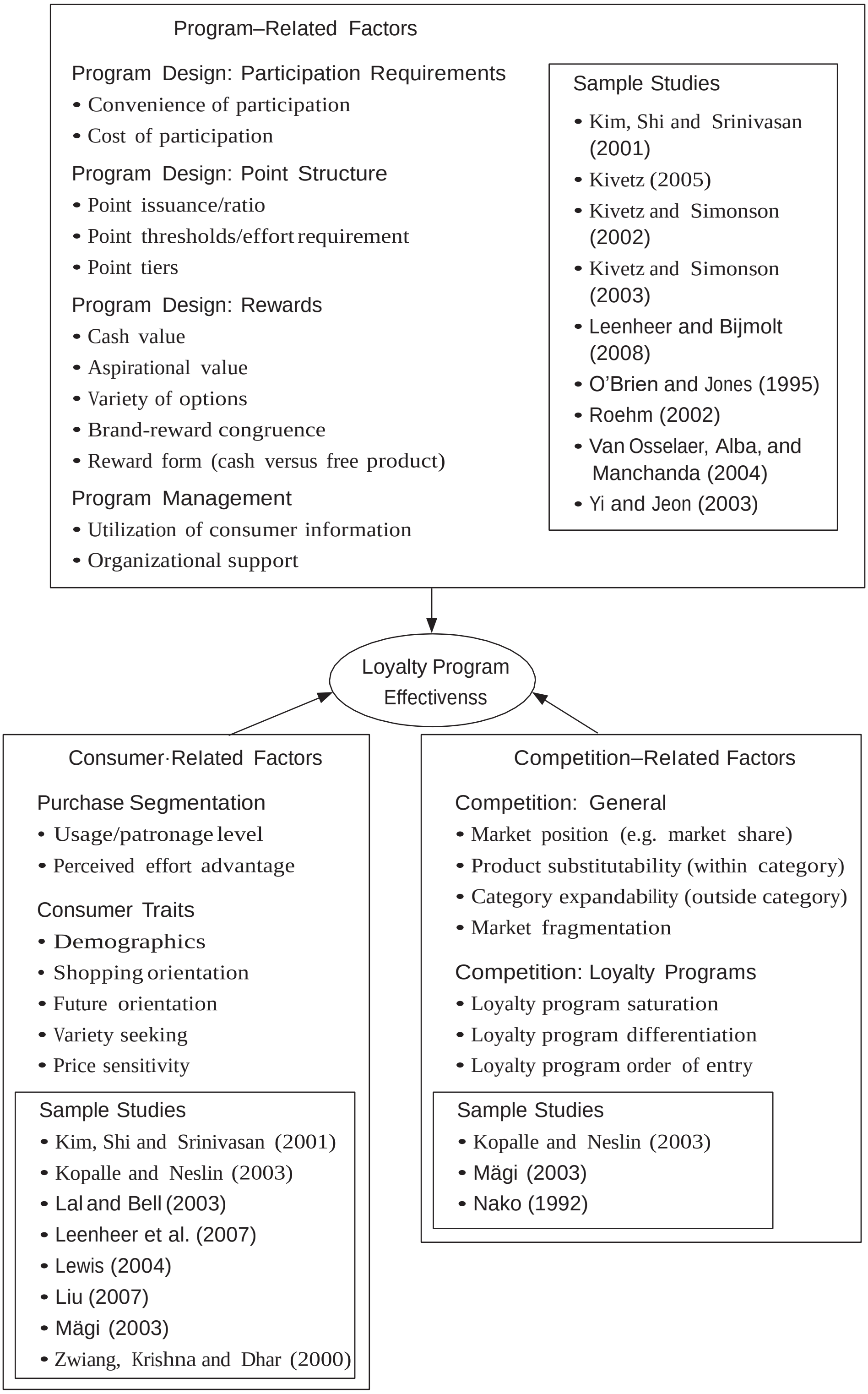
We define loyalty programs as long-term-oriented programs that allow consumers to accumulate some form of program currency, which can be redeemed later for free rewards. An airline's frequent-flier program represents a typical loyalty program. By focusing on long-term programs, we exclude promotional programs that offer only one-shot, immediate benefits, such as instant-win scratch cards and grocery stores' discount card programs. In contrast to loyalty programs that are designed to create a future orientation and increase switching costs over the long run (Kim, Shi, and Srinivasan 2001; Lewis 2004), these short-term promotions are more likely to create sudden changes in sales without producing sustained customer loyalty or revenue potential for a firm. Research has shown different mechanisms underlying these one-shot, immediate reward programs compared with long-term loyalty programs that offer consumers delayed rewards (Yi and Jeon 2003; Zhang, Krishna, and Dhar 2000). Confirming this view, Leenheer and Bijmolt (2008) find that delayed rewards in a loyalty program have a significant impact on customer loyalty, whereas one-shot promotional features do not. Therefore, we consider it more appropriate to separate the two types of programs. Our decision is also supported by different financial implications of the programs, with one-shot programs incurring immediate costs and benefits and long-term loyalty programs creating long-term obligations and value for a firm.

Diverse Performances of Loyalty Programs

Prior research has documented mixed outcomes of loyalty programs operating in the same markets. For example, Meyer-Waarden and Benavent (2006) compare a consumer panel's observed purchases at seven grocery stores with Dirichlet predictions and find excessive loyalty attributable to loyalty programs for only three stores. The loyalty programs that Leenheer and colleagues (2007) study also varied on their share-of-wallet impact and profitability. A natural question from these mixed findings is why loyalty programs exhibit diverse performance. Although this phenomenon may not be surprising, a systematic understanding of the factors contributing to diverse loyalty program performances is important because it can aid in managers' assessment of whether a loyalty program is appropriate in a certain context and can help identify ways of improving the effectiveness of such programs (Bolton, Kannan, and Bramlett 2000).

In studying loyalty program performance, it is important to recognize that loyalty programs do not operate as separate entities in an isolated environment. Their success depends not only on the programs themselves but also on other facilitating or inhibiting factors present in the environment. Specifically, we propose three sets of factors that represent the main market entities involved: the focal loyalty program, the consumers (i.e., target market), and rival programs and firms (i.e., competition). Figure 1 lists the factors and sample studies within each set. Of these, program related factors explain a firm's internal strategies that can contribute to the success of a loyalty program, whereas consumer and competition factors represent things in the external environment that are equally important to loyalty program performance. We argue that it is the joint force of all these factors that determines the eventual outcome of a loyalty program. This line of thinking resembles other studies of marketing strategy, in which the initiation and outcomes of marketing strategies are affected by both the internal environment of the firm and external market and industry environments (Varadarajan and Jayachandran 1999). In the following sections, we first review existing research that has examined some of the factors in our proposed framework. From the review, we note the relative void of studies on competition-related factors, and we focus on these factors in our two studies. Before we turn to the literature, however, it is important to note that loyalty program performance can be measured in multiple ways.

Figure 1: Factors affecting loyalty program effectiveness


Program–Related Factors
Program Design: Participation Requirements
• Convenience of participation
• Cost of participation
Program Design: Point Structure
• Point issuance/ratio
• Point thresholds/effort requirement
• Point tiers
Program Design: Rewards
• Cash value
• Aspirational value
• Variety of options
• Brand-reward congruence
• Reward form (cash versus free product)
Program Management
• Utilization of consumer information
• Organizational support
Sample Studies
• Kim, Shi and Srinivasan (2001)
• Kivetz (2005)
• Kivetz and Simonson (2002)
• Kivetz and Simonson (2003)
• Leenheer and Bijmolt (2008)
• O'Brien and Jones (1995)
• Roehm (2002)
• Van Osselaer, Alba, and Manchanda (2004)
• Yi and Jeon (2003)
Loyalty Program Effectivenss
Consumer·Related Factors
Purchase Segmentation
• Usage/patronage level
• Perceived effort advantage
Consumer Traits
• Demographics
• Shopping orientation
• Future orientation
• Variety seeking
• Price sensitivity
Sample Studies
• Kim, Shi and Srinivasan (2001)
• Kopalle and Neslin (2003)
• Lal and Bell (2003)
• Leenheer et al. (2007)
• Lewis (2004)
• Liu (2007)
• Mägi (2003)
• Zwiang, Krishna and Dhar (2000)
Competition–Related Factors
Competition: General
• Market position (e.g. market share)
• Product substitutability (within category)
• Category expandability (outside category)
• Market fragmentation
Competition: Loyalty Programs
• Loyalty program saturation
• Loyalty program differentiation
• Loyalty program order of entry
Sample Studies
• Kopalle and Neslin (2003)
• Mägi (2003)
• Nako (1992)

Nunes and Drèze (2006) suggest that loyalty programs can serve different goals, such as retaining customers, increasing spending, and gaining customer insights. Therefore, each program should have its own unique set of success measures depending on its intended goals. For cross comparison purposes, however, it is also useful to examine some standard measures. Prior research has used consumer level outcomes, such as purchase frequency, transaction size, and share of wallet, as well as firm-level factors, such as store sales and traffic. Although all these measures are useful, because each measure may be driven by different underlying mechanisms, caution should be taken before directly comparing some of the existing studies.

Existing Research on Loyalty Program Performance

Program-related factors. Program-related factors include both program design and management. From the design perspective, a loyalty program needs three key specifications: (1) participation requirements, (2) point structure, and (3) rewards. The first element pertains to the convenience and cost of participation. Participation modes can be differentiated by voluntary versus automatic enrolment and free versus fee-based membership. Programs also differ in terms of how convenient it is for consumers to participate (O'Brien and Jones 1995). For example, some programs automatically accumulate points, whereas others require more effort from consumers, such as manual code entry required by My Coke Rewards. O'Brien and Jones (1995) suggest that the convenience of participation can affect the appeal of a loyalty program. So far, however, the effects of participation requirements have not received much empirical examination.

The second aspect of a loyalty program, point structure, involves how reward points are issued, what the point thresholds are for redeeming rewards, and whether a tiered structure is used. Regarding the issuing of reward points, Van Osselaer, Alba, and Manchanda (2004) find that though point threshold stays the same, the way points are issued over each purchase (ascending points versus same points per purchase) affects consumers' choices. This suggests that point issuance is not a nuisance to consumers and should not be determined arbitrarily. Point threshold is another important aspect of point structure, and it has been tied in to program relevance (O'Brien and Jones 1995). If the point threshold for a free reward is too high, it will be considered unobtainable for the average consumers and thus will be dismissed as irrelevant. The final aspect of point structure involves tiered structures (e.g., gold and platinum memberships based on spending levels). Taking this tiered structure into account, Kopalle and colleagues (2007) find that program tiers create a point pressure effect on purchases by both price-conscious and service-oriented consumers, whereas the frequency reward itself creates such an effect only for price-conscious consumers.

The third design element, choice and availability of rewards, has received the most extensive attention in existing studies. This design element includes reward value and cost, actual rewards offered, and their compatibility with the focal brand. For example, O'Brien and Jones (1995) suggest reward ratio, variety of reward redemption options, and aspirational value of rewards as important considerations. Kivetz and Simonson (2002) test the aspirational value aspect in an experimental setting and find its effects to be moderated by effort requirement. A luxury reward is preferred when effort requirement is high, whereas a less aspirational necessity reward is preferred when effort requirement is low. A few studies have considered the congruence between rewards offered and the focal brand and find that, in general, brand-congruent rewards are more effective than incongruent rewards, though this effect is moderated by factors such as consumer involvement and promotional reactance (Kivetz 2005; Roehm, Pullins, and Roehm 2002; Yi and Jeon 2003). Focusing more from a firm strategy perspective, Kim, Shi, and Srinivasan (2001) use game theory to identify the optimal conditions for offering cash versus free products as rewards. They find that the former is better if there are few price-sensitive heavy buyers, whereas the latter is more effective when the heavy buyer group is large or not very price sensitive.

In addition to program design factors, research has shown the impact of program management on the success of a loyalty program. For example, from a survey of 180 retailers, Leenheer and Bijmolt (2008) conclude that the success of a loyalty program is affected by the effort spent on capturing and analyzing consumer intelligence derived from the program. It may be surmised that the success of a loyalty program also depends on organizational support of the program and the amount of resources dedicated to program management, but these organizational factors have not been subject to empirical testing.

Consumer characteristics. Although proper program design and management are critical, it is consumers' reactions to a loyalty program that ultimately determine program success. Fewer studies have examined the impact of consumer characteristics on loyalty program effects. Consumer characteristics can be crudely classified into firm specific attitudinal and behavioural factors versus traits and characteristics that carry across firms. In the former category, Lal and Bell (2003) and Liu (2007) examine the moderating effect of consumers' usage levels. Contrary to traditional wisdom of loyalty programs as a defence mechanism mainly for heavy buyers, these studies find the biggest increase in spending and purchase frequency among light buyers. This is attributed to loyalty programs' ability to eliminate cherry-picking (Lal and Bell 2003) and to encourage cross-selling (Liu 2007). Within this category of studies, Kivetz and Simonson (2003) also examine the effect of perceived effort advantage. Rather than treating point threshold as a program design factor, as we discussed previously, Kivetz and Simonson find that it is not the effort required per se but the perceived effort advantage a consumer has over other consumers that affects his or her likelihood of joining a program. This perceived effort advantage again can be driven by consumers' usage levels. However, note that this effort advantage effect may drive program joining decisions but may not carry over to what consumers do after they have joined a program.

Additional studies have segmented consumers according to their generic traits or characteristics, such as socio-demographics (Leenheer et al. 2007), shopping orientation (Mägi 2003), future orientation (Kopalle and Neslin 2003), variety seeking (Zhang, Krishna, and Dhar 2000), and price sensitivity (Kim, Shi, and Srinivasan 2001; Kopalle et al. 2007). However, few of these factors have received empirical support. This may be attributed to the overgeneralised nature of these variables. So far, two factors, future orientation and price sensitivity, have received some support. Because loyalty programs reward consumers' current behaviour at some point in the future, it is not surprising that such programs are found to be more appealing to consumers who do not heavily discount future benefits (Kopalle and Neslin 2003). Corroborating this view, Lewis (2004) finds that treating consumers as dynamically oriented better explains their purchase decisions in the presence of a loyalty program. The second factor, price sensitivity, has been found to moderate consumers' reactions to program design elements (Kopalle et al. 2007).

Overall, existing studies of consumer-related factors appear to suggest that firm-specific behaviour and attitudes are better predictors of consumer reaction to a loyalty program. However, further research is needed to identify and test other consumer traits before a final conclusion can be drawn. We also note that though consumer-related factors have been mainly used to explain differential responses to the same loyalty program, they can also contribute to the diverse performances across programs by considering the varying composition of program members. Examples of this approach can be found in two game-theoretic models related to loyalty programs (Kim, Shi, and Srinivasan 2001; Zhang, Krishna, and Dhar 2000), in which individual characteristics, such as variety seeking and price sensitivity, are translated into market characteristics.

Competition-related factors. One problem with considering only program- and consumer-related factors is that it puts the program-offering firm and consumers in an isolated setting. In reality, however, most loyalty programs face competition from rival programs that offer similar benefits, and enrolment in multiple programs is common. In the retail industry, for example, consumers hold an average of three loyalty program cards (Meyer-Waarden 2007). This has led to the suggestion that firms need to "take into account cardholders' 'card portfolios' when evaluating the effectiveness of loyalty programs" (Mägi 2003, p. 104). However, research on this type of influence is the scarcest, as is apparent in the shortest list of published studies in this set shown in Figure 1. A majority of existing studies have examined a single loyalty program in isolation. Among the few studies that have considered simultaneously the performances of multiple loyalty programs (e.g., Leenheer et al. 2007; Meyer-Waarden and Benavent 2006), most treat the programs as parallel strategies and do not explain the interaction among those programs.

Only four published studies have considered loyalty programs in a competitive setting. Two of these studies (Mägi 2003; Meyer-Waarden 2007) find that consumers' holding loyalty program cards from competing chains reduces the share of wallet and customer lifetime for the focal chain. However, they do not consider the direct effect of competition on program performance, nor do they identify the reasons for competitive influence. Two earlier studies offer more specific examination of loyalty program competition and study the effect of firm-level factors. Nako (1992) analyzes travel records from three firms in the Philadelphia and Baltimore metropolitan areas. The results show that the value of a frequent-flier program increases with the airline's share in a traveller's main airport, suggesting the influence of a firm's market position on the success of its loyalty program. Along similar lines, Kopalle and Neslin (2003) model loyalty program competition and demonstrate that free rewards offered by firms charging higher prices are valued more by consumers. However, this proposition is not empirically tested and is likely to be constrained by model assumptions about market conditions and consumer behaviour.

Summary

With limited research on loyalty programs, it is still unclear to what extent loyalty programs are effective and, more important, what induces the success and failure of different programs. Although some studies have examined the moderating effects of program and consumer characteristics, existing research tends to put a loyalty program in a vacuum that is void of impact from rival firms and programs. This omission of competitive influence is undesirable; prior research has shown that myopic profit maximization without considering competition can lead to suboptimal firm decisions (e.g., Carpenter et al. 1988). It also counters the marketplace reality of loyalty program proliferation within many industries. Questions still remain as to whether competitive loyalty programs in such industries really cancel one another's effects out, creating a zero-sum game, or whether some firms may enjoy asymmetric advantages with their loyalty programs due to their competitive positioning. Answers to these questions are critical to a complete understanding of loyalty programs. Incorporating competition will also offer more useful decision support to loyalty program managers and to firms that are pondering the establishment of a new loyalty program in the presence of existing rival programs.

RESEARCH HYPOTHESES

This research aims to bridge the gap in the literature by examining how competitive forces affect the business impact of a loyalty program. Although there are multiple measures of loyalty program effectiveness, we focus on firm-level sales, which have been found to be a key driver in the establishment of loyalty programs (Baird 2007). To study loyalty program competition, we draw from the resource-based view of the firm (Wernerfelt 1984), which argues that each firm possesses a unique set of tangible and intangible resources that determine its relative position in competition. From this perspective, a loyalty program plays two roles. First, it represents a unique firm resource that encompasses elements such as program members, program currency, and program loyalty. The program currency component, for example, can be traded to other firms for revenue or can be used in pricing that has been shown to excel over purely monetary-based pricing (Drèze and Nunes 2004). Second, a loyalty program embodies a distinct capability that enables a firm to deliver superior value to its customers, as demonstrated by the consumer benefits we discussed previously. Moreover, because a loyalty program captures essential consumer information that may be difficult to trace otherwise, it also belongs to the market-sensing capability that is considered essential to market-driven firms (Day 1994). These capabilities can help a firm obtain other essential resources, such as new customers and brand loyalty.

Although loyalty programs are important firm resources, the resource-based view also suggests that not all resources result in competitive advantage (Day 1994; Wernerfelt 1984). Our study of loyalty program competition builds on two key constraints on the effectiveness of a resource: (1) the rarity of the resource in the market (Hunt and Morgan 1995; Wernerfelt 1984) and (2) the presence of other complementary resources and capabilities that help firms realize the full potential of the resource (e.g., Moorman and Slotegraaf 1999). Specifically, we argue that the effectiveness of a loyalty program depends on the prevalence of such programs and that some firms enjoy an undue advantage with their loyalty programs over their competitors because of other complementary resources they possess. By considering these market- and firm-related factors, we account for the dynamics among rival loyalty programs and thus put the programs in a more realistic setting. As we demonstrate subsequently, these factors can help explain the diverse findings in existing research.

Asymmetric Influences of Loyalty Programs: Market Share Effect

From our previous discussion of loyalty program benefits, we begin with the assumption that a loyalty program can increase firm revenue. However, we argue that such benefits do not manifest equally in all firms and that some firms gain more from their loyalty programs than others. Such asymmetric performances across firms are an important market phenomenon, and understanding such asymmetries is considered key to brand management (Sivakumar 2004). Focusing on competitive factors, we argue that the disparity in loyalty program performance can be at least partially attributed to the different market positions of program-offering firms. Whereas market position encompasses many factors, here we examine the effect of market share. We choose to focus on market share because it is an important indicator of market structure and of a firm's market power (Wood 1999). Although market share has most often been treated as an outcome of rather than an input into competition, prior research has also shown unique resource advantages that can be attributed to having a larger market share, such as customer loyalty, lower costs, and channel benefits (Besanko, Dubé, and Gupta 2005; Boulding and Staelin 1993; Fader and Schmittlein 1993; Sethuraman 1995). Although we do not claim that high-share brands are always better off than low-share brands, existing research has shown that in certain situations, high-share brands enjoy more asymmetrical advantages than low-share brands. Extending the literature, we argue that loyalty programs can also favour high-share brands over low-share brands. This is due to two crucial complementary resources that high-share brands enjoy: customer assets and product resources. From a customer assets perspective, high-share brands have more buyers, thus providing a larger customer base from which to draw loyalty program members. Furthermore, high-share brands tend to enjoy higher purchase frequency and higher repeat purchase rates from consumers (Ehrenberg, Goodhardt, and Barwise 1990; Fader and Schmittlein 1993). This increases the relevance of the loyalty program to consumers (O'Brien and Jones 1995) and, combined with a larger customer base, creates a critical mass of program participants. More customers also bring more potential publicity for the loyalty program. From a product resources perspective, high-share brands are likely to have a more diverse product portfolio and wider distribution channels to which consumers have access. In the airline industry, for example, major airlines offer more routes to more destinations than their smaller opponents. This creates more opportunities for earning program currency and again increases the relevance of the program to consumers (Nako 1992; O'Brien and Jones 1995). Furthermore, high-share brands may have an advantage when program rewards are in the form of free or discounted products. With the exception of niche luxury brands, a free product from a larger brand is likely to be perceived as more valuable than that from a smaller brand (Kopalle and Neslin 2003). The diverse product portfolio likely to be offered by a high-share brand also increases the variety of redemption choices. Whereas the actual redemption choices available to consumers are limited by program design, a diverse product portfolio still gives high-share firms more options to consider when designating which products to offer as rewards. Finally, high-share firms also possess the critical mass to draw strategic program partners, as in the case of major airlines offering a wide range of rewards, from free hotel nights to magazines and retail gift certificates. This increases the appeal of the programs. With the help of all these complementary resources, we expect that the impact of a loyalty program is greater for a firm with a higher market share than for a firm with a lower market share. Thus:

> H_1: The impact of a loyalty program is affected by a firm's market share, such that a program offered by a high-share firm has a greater impact on the firm's sales than a program offered by a low-share firm.

Market Saturation Effect

We further argue that the impact of a loyalty program is limited by competitive offerings in the market. From a consumer utility perspective, a loyalty program offers additional return in the form of rewards and thus shifts the distribution of value among competing firms in favour of the loyalty program firm. If competing firms do not adjust their strategies accordingly, this can create a redistribution of consumers in the market. However, if the market offers many rival loyalty programs, the novelty and value advantage of a single program diminishes. Moreover, the accumulated points consumers have in other programs become barriers to switching because consumers must either forsake those points or delay their progress toward a reward because of divided efforts among multiple programs (Kim, Shi, and Srinivasan 2001). This is referred to as the lock-in effect of loyalty programs (Sharp and Sharp 1997). The lock-in effect makes it more difficult for a firm to excel over competition in its value proposition by offering a loyalty program. Although this may not affect loyalty programs as a viable strategy for an industry as a whole, at the firm level, the impact of a loyalty program is likely to decrease as a result of market saturation. From a strategic resources perspective, a loyalty program loses its position as a unique resource when such programs become more commonplace in the market. This view is consistent with Day (1994), who emphasizes the importance of “distinctive” capabilities in securing a unique and superior market position. Scarcity of a capability is a necessary condition for the capability to become a source of competitive advantage and for the durability of such advantages. In line with this thinking, when many competitors offer loyalty programs, the distinct value the program provides to each firm should diminish. Thus:

> H_2: The sales impact of an individual loyalty program diminishes with the level of saturation of loyalty programs in the marketplace.

STUDY 1

Data

We test our hypotheses using data from the airline industry. We selected this industry context for a few reasons. First, as the pioneer of modern loyalty programs, the airline industry is still the current market leader in terms of loyalty program enrolment, claiming a total membership of more than 254.4 million in 2006 (Ferguson and Hlavinka 2007). Many loyalty programs in other industries have been modelled after the airline industry, using similar program design and reward structures. Second, there is intense competition among airlines’ loyalty programs as a result of the large number of programs offered, making it an ideal context for studying loyalty program competition. Furthermore, because frequent-flier programs are designed similarly across airlines, it helps control for program design factors and isolates the effect of competition. Finally, a longer loyalty program history and more publicly available statistics from the airline industry also offer rich data to study these programs. Because a majority of previous studies in this area have focused on the retail industry, our focus on the airline industry broadens the scope of loyalty program research. Our analysis covers 22 publicly traded airlines in the United States over the course of 31 years (1975–2005). For each airline, we identified the availability and launch of its loyalty program from sources such as company Web sites, public release, annual reports, business news, and other public databases. Of the 22 airlines, 15 offered a loyalty program. The earliest one was American Airlines’ Advantage program, which was launched in 1981, and the most recent one was Big Sky Airlines’ MVP Club, which was established in 2004. In addition to loyalty program information, we obtained the airlines’ financial data from COMPUSTAT; revenue passenger miles (RPMs), capacity, and segmentation data from the Bureau of Transportation Statistics; and airfare information from the Air Transport Association.

The Model

To test our hypotheses, we modelled the impact of loyalty programs and competitive factors on each airline’s annual sales as in Equation 1:

$$(1)\quad Sales_{it}\ 5\ \alpha_0\ 1\ \alpha_1 LP_{it}\ 1\ \alpha_2 LP_{it}\ x\ MS_{i(t-1)}\ 1\ \alpha_3 LP_{it}\ x\ Sa_{tt}\ 1\ \alpha_4 Adv_{it}\ 1\ \alpha_5 Price_t\ 1$$

$\alpha_6 Sales_{i(t-1)}$ 1 e_{it},

where

$Sales_{it}$ 5 firm i's annual inflation-adjusted sales in dollars at time t (t – 1),

LP_{it} 5 1 if firm i has a loyalty program at time t and 0 if not,

$MS_{i(t-1)}$ 5 size of firm i as measured by its market share (ratio of its RPMs to industry RPM total) at the end of time t – 1 (i.e., at the beginning of t),

Sat_t 5 loyalty program saturation at time t as measured by the combined market share covered by all loyalty program–offering firms in the marketplace,

Adv_{it} 5 firm i's inflation-adjusted spending on advertising and promotion in dollars during time t,

$Price_t$ 5 average inflation-adjusted airfare in dollars reported for time t, and

e_{it} 5 the residual term.

The first dummy variable, LP_{it}, represents the pure effects of firm i's own loyalty program without any competition, and its coefficient, α1, should be positive if a loyalty program is indeed effective in boosting the offering firm's sales. We capture the size effect (H_1) by the LP_{it} 3 α $MS_{i(t-1)}$ interaction term. To reduce correlation with sales, we used the airlines' RPMs to derive market share. The Bureau of Transportation Statistics defines an RPM as "one revenue passenger transported one mile in revenue service" (http:// www.transtats.bts.gov/Glossary.asp); this is a better indicator of an airline's weight in the passenger travel market. We calculated each airline's market share at time t by dividing its domestic RPMs at time t by industry total for that period. Because larger firms are expected to benefit more from their loyalty programs, the coefficient for this interaction term (α_2) should be positive. The LP_{it} x αSat_t interaction represents the moderating effect of market saturation (H_2). We operationalised saturation as the sum of market shares of all firms that had a loyalty program at time t. In other words, Satt represents the portion of the market that is covered by loyalty programs at time t. Thus, the interaction between LPit and Satt indicates the dilution of firm i's program impact due to saturation of loyalty programs in the marketplace and is expected to have a negative effect on sales (i.e., α 3 < 0).

In addition to loyalty program and competition-related variables, we included two control variables: Adv_{it} represents firm i's advertising and promotional spending, and $Price_t$ controls for the effect of price fluctuation. Because historical data on individual airlines' prices are not available, we used the inflation-adjusted average passenger airfare, as reported by the Aviation Transportation Association. Finally, the model also contained a lagged sales term to capture the effects of past sales on the current period.

Model Estimation

Because a firm's decision to launch a loyalty program may be affected by the firm's past sales and/or factors that simultaneously drive sales, the LP_{it} variable may be endogenous. This can lead to incorrect estimates. To address this issue, we followed Wooldridge's (2002) recommended approach and used instrumental variables, whose requirements are that they can explain LP_{it} but have minimal correlation with the original model residual. Specifically, we used two lagged instrumental variables: load factor and market concentration. The airline industry uses the first variable, load factor ($LoadFactor_{it-1}$), to indicate the extent to which an airline's available capacity is occupied by paid passengers. It is calculated as the ratio of the airline's RPMs to the airline's total available seat miles. Because an airline with a low load factor (i.e., more vacant capacity) is likely to have more room for reward travel and to be more eager to fill its seats, we expect that load factor affects loyalty program launch negatively.

The second instrumental variable, market concentration (HHI_{it-1}), measures the extent to which a market is dominated by a few large firms and is often calculated as the Hirschman–Herfindahl index (HHI) in the economics literature (Kwoka 1977). The HHI is the sum of squared market shares for all firms in the market and is bound between 0 and 1 in its normalized form. A high HHI indicates low competitive intensity, and a low HHI indicates high competitive intensity. Although an HHI could be calculated for the entire airline industry, this industry HHI would not be helpful to us, because it would be the same for all airlines and would not explain differences in firms' loyalty program launch decisions. Therefore, we calculated segment-level HHIs. The Bureau of Transportation Statistics segments airlines according to their sizes and operational regions. Using this segmentation, we identified all airlines operating in each segment, calculated the yearly segment share of each airline using RPMs, and then derived the normalized HHI for each segment in each year. Prior research has suggested that stronger competitive intensity is likely to induce the establishment of loyalty programs (Leenheer and Bijmolt 2008). Therefore, we expect that a low level of HHI (i.e., high competitive intensity) leads to more loyalty program launch.

Following Wooldridge's (2002) recommended two stage least squares approach, we first regressed the two instrumental variables together with the other independent variables from the main model on LP_{it}. A unique nature of the LP_{it} variable is that it is only endogenous in some cases. This is because when a loyalty program is launched, it is likely to continue for the following years. Therefore, although the decision to launch a loyalty program may be endogenous, the LP_{it} following a program launch becomes a constant and thus is no longer endogenous (Wooldridge 2002). To accommodate this, we constrain LP_{it} to 1 if firm had a loyalty program before time t and used the instrumental variables only for the cases in which a loyalty program did not already exist before time t, as shown in Equation 2:

$$(2)\ LP_{it} = \begin{cases} \beta_0 + \beta_1 \text{Loadfactor}_{it\text{-}1} \\ + \beta_2 \text{HHI}_{it\text{-}1} + \beta_3 \text{MS}_{i(t\text{-}1)} \\ + \beta_4 \text{Sat}_t + \beta_5 \text{Adv}_{it} \\ + \beta_6 \text{Pricet} + \beta_7 \text{Sales}_{i(t\text{-}1)} \\ \text{if } LP_{i(t\text{-}1)} = 0 \\ \text{if } LP_{i(t\text{-}1)} = 1 \end{cases}$$

In the second stage, we used the predicted values for LP_{it} in lieu of the original values to estimate the main model (Leenheer et al. 2007). Because our data were both cross-sectional and longitudinal in nature, we estimated our model using panel regression, which accounts for firm idiosyncrasies. 1 Two approaches are often used in panel regression: fixed-effects models and random-effects models (Wooldridge 2002). Fixed-effects models estimate a firm specific constant to captures firm heterogeneity, whereas random-effects models assume that firm variations are randomly distributed across the population. In general, random-effects models are more efficient but can lead to biased estimates when firm-specific effects are correlated with other regressors in the model. In such cases, fixed effects models are needed to obtain consistent results.

We used the Hausman (1978) test to detect the appropriateness of fixed- versus random-effects specifications, which suggests that fixed-effects panel regression was more appropriate for our data ($\chi^2 = 23.57$, $p < .001$). Consequently, we fitted a fixed-effects model. Furthermore, to eliminate collinearity among the predictor variables in the model, we mean-centred all variables in the interaction terms (for the correlation matrix, see Table 1).

Results

Table 2 shows the results for both stages of regression. The R-square for the first-stage model was .82. Both instrumental variables had a low and insignificant correlation with the residuals from the original model (for load factor, r 5 .03, and for market concentration, r 5 .06; *ps* > .3), suggesting that they were appropriate choices as instrumental variables. As we expected, load factor had a significant, negative effect on loyalty program launch (β_1 5 –.42, *p* 5 .02). Market concentration also had a negative effect on LP_{it} (β_2 5 –.09, *p* 5 .04), suggesting that the decision to launch a loyalty program is more likely under more intensively competitive environments.

The R-square for the second-stage model was .97. The results showed an insignificant coefficient for LP_{it} (β_1 5 .01, *p* 5 .69). Because we mean-centred the interactions, this coefficient represents the main effect of loyalty program when the other interacting variables are at their mean levels. In other words, our finding means that loyalty programs had no significant effect on sales at an average market share (5.6% in our case) and with program saturation at the mean level (60.6% of market). It is possible to transform this coefficient into an absolute effect when the values of the moderator variables are zero. This also revealed an insignificant effect of LP_{it} (F < 1). Overall, loyalty programs by themselves did not create incremental sales for the airlines.

Table 1: Correlation Matrices

A: Study 1

	$Sales_{it}$	LP_{it}	$LP_{it} \times MS_{i(t-1)}$	$LP_{it} \times Sat_t$	Adv_{it}	$Price_t$	$Sales_{it(t-1)}$
$Sales_{it}$	1						
LP_{it}	.09$^{n.s.}$	1					
$LP_{it} \times MS_{i(t-1)}$	.13**	.19***	1				
$LP_{it} \times Sat_t$	.06$^{n.s.}$	.11*	.24***	1			
Adv_{it}	.57***	.35***	.18***	.10$^{n.s.}$	1		
$Price_t$	.00$^{n.s.}$	.00$^{n.s.}$	.00$^{n.s.}$	.00$^{n.s.}$	.00	1	
$Sales_{it(t-1)}$	.76***	.15**	.33***	.10$^{n.s.}$	.83***	.00$^{n.s.}$	1

B: Study 2^a

	$Frequency_{ij}$	LP_{ij}	$LP_{it} \times MS_j$	$LP_{it} \times Sat_j$	$LP_{it} \times Sat_j \times Expandibility_i$	$Loyality_{ij}$	
$Frequency_{ij}$							
LP_{it}		1					
$LP_{it} \times MS_j$		.20***	1				
$LP_{it} \times Sat_t$		.11***	.27**	1			
$LP_{it} \times Sat_j \times Expandibility_i$		.08***	.76***	.09***		1	
$Loyality_{ij}$		.11***	.56 ***	.04$^{n.s.}$	.75$^{n.s.}$	1	
		.26***	.55***	.18***	.13***	.12***	1

*p ≤ 05.
**p ≤ 01.
***p ≤ 001.

[a] Some of the correlations reported here are relatively high. The mean-centering approach we used has been criticized for not necessarily solving multicollinearity. An often-used alternative approach is to orthogonalize the interaction terms by regressing each interaction term on its composing variables and using the residuals in the main regressing (Burrill 1997). This orthogonalization approach yielded simlilar findings for our model. Here, we report the results from the mean-centering approach because it allows for simpler interpretation and testing of linear combinations of regression coefficients.

Notes: n.s 5 not statiscally significant.

Table 2: Standardized Model Estimates

A: Study 1

First Stage		Second Stage	
Variables	Coefficients (t-Values)	Variables	Coefficients (t-Values)
$LoadFactor_{it(t-1)}$	- .42* (-2.39)	LP_{ij}	.0 1$^{n.s.}$ (.40)
$HHI_{i(t-1)}$	- .09* (- 2.05)	LP_{ij} x MS_j	.10*** (5.84)
$MS_{i(t-1)}$	- .7.1*** (-5.69)	LP_{ij} x Sat_j	.03$^{n.s.}$ (1.37)
Sat_{it}	- .07$^{n.s.}$ (-1.05)	Adv_{it}	.22*** (6.85)
Adv_{it}	.74*** (6.93)	$Price_t$	-24*** (-9.95)
$Price_t$	- .39* (2,42)	$Sales_{i(t-1)}$	.34*** (10.08)
$Sales_{i(t-1)}$	- .03$^{n.s.}$ (.64)		
Adjusted R^2	.82	Adjusted R^2	.96

B: Study 2

First Stage		Second Stage	
Variables	Coefficients (t-Values)	Variables	Coefficients (t-Values)
$LoyaltyProne_i$	- .06** (-2.49)	LP_{ij}	.17*** (3.35)
MS_j	- .02* (.91)	LP_{ij} x MS_j	.08*** (3.45)
Sat_i	- .23*** (9.87)	LP_{ij} x Sat_i	-.16** (-3.03)
Expandability	- .01$^{n.a.}$ (-.35)	LP_{ij} x Sat_i x $Expandability_i$	.11** (4.78)
$Loyalty_{ij}$	.15*** (6.28)	$Loyalty_{ij}$	.16*** (3.16)
Adjusted R^2	.08	Adjusted R^2	.12

*p ≤ 05.
**p ≤ 01.
***p ≤ 001.
Notes: n.s 5 not statistically significant.

In contrast, the coefficient for LP_{it} 3 MS_i was significant and positive (α_2 5 .10, $p < .001$), in support of H_1. When we combine this finding with the insignificant main effect of LP_{it}, the results suggest that firms in a parity competitive position do not benefit significantly from their loyalty programs. Only when firms have a larger market share and, therefore, a superior combination of complementary resources do loyalty programs become a beneficial strategy, at least from an incremental sales perspective. To understand the size of this effect, we turn to the unstandardised regression coefficient, which shows that a 1% increase in market share from the average of 5.6% brings a loyalty program–induced annual sales lift of $309.57 million (in 2005 dollars). Although this magnitude of gain is impressive, it is necessary to consider it in the context of the airline industry, which typically reports large sales figures. For example, Continental Airlines, which had an 8.6% share in the passenger travel market in 2005, reported total sales of $11.21 billion. Using the results from our model, we can infer that $928.71 million (8.28%) of its sales may be attributed to its loyalty program. Table 3 lists the effect size for the top six airlines. Although the gains from loyalty programs for high share firms are large, H_2 predicted that the concurrent existence of other loyalty programs should lessen the impact of a firm's loyalty program as a result of market saturation. We captured this moderating effect of market saturation with the LP_{it} 3 Satt term. Contrary to prediction, however, our analysis revealed an insignificant coefficient of the interaction term (α_3 5 .03, p 5 .17). This is surprising. Despite much speculation that the prevalence of loyalty programs essentially creates a zero-sum game, our findings show that saturation of frequent-flier programs does not significantly mitigate the effects of such programs. We explore this anomaly further in Study 2.

For the control variables, we found the expected positive effect of advertising and promotion (α_4 5 .22, $p < .001$), consistent with the notion that a firm benefits from spending on advertising and promotional activities. As we also expected, the price variable had a significant, negative effect on sales (α_5 5 –.24, $p < .001$). The coefficient for the sales lag variable was significant and positive (α_6 5 .34, $p < .001$). Because the coefficient was lower than 1, it suggests that the impact of past sales diminishes over time, consistent with observed sales patterns in previous research (Hanssens, Parsons, and Schultz 2001).

Discussion

Study 1 found an insignificant main effect of loyalty programs on airline sales. Instead, the results suggest that a loyalty program has a positive impact only when the offering firm's market share is relatively high, consistent with our notion that firms need complementary resources to derive competitive advantage from their loyalty programs. A surprising finding from the study is that market saturation did not significantly reduce the effectiveness of loyalty programs. This may explain the proliferation of loyalty programs in the airline industry. Four of the airlines we studied launched their loyalty programs after 2000. Although this finding lends support to such practices, it is unclear why loyalty programs did not become a zero-sum game, as prior research has predicted. Does the rule of scarcity not apply to loyalty programs? Are there other variables that might have mitigated the negative effect of saturation? We answer these questions in Study 2. Study 2 also addresses a limitation in Study 1 that resulted from the use of firm-level aggregate data. Because airlines can derive revenues from other business areas, the sales figures may be affected by confounding factors from those areas.

STUDY 2

Overview

The goals of Study 2 were twofold: to test the robustness of the findings from Study 1 with a dependent variable other than firm-level sales and to identify the factors that might have mitigated the effect of market saturation. Specifically, we consider the contingency effect of category expandability (Kopalle and Neslin 2003), which refers to the presence of alternative product choices outside a category (e.g., other modes of travel). Using game-theoretic modelling, Kopalle and Neslin (2003) conclude that loyalty programs are more appealing in expandable markets because they can help the offering firms draw demand from outside the category.

Table 3: Effect size of loyalty programs for top six airlines in 2005

Airline	**Sales (in Millions of Dollars)**	**Market Share (%)**	**Inferred Sales Gain from Loyalty Program (in Millions of Dollars)**	**% of Sales Gain**
American	20,712	17,40	3,652,93	17,64
United	17,379	14,37	2,715,43	15,62
Delta	16,191	13,05	2,305,40	14,24
Northwest	12,286	9,55	1,222,26	9,95
Continental	11,208	8,60	928,20	8,28
Southwest	7,584	7,59	615,91	8,12

Applied to the saturation effect, if a product category is highly expandable, it can be surmised that saturation will be less of a threat because loyalty programs can still help firms compete effectively against alternative offerings from other industries. In other words, a highly expandable market opens up the boundary of competition, and as a result, prevalent resources within the narrow market can still lead to competitive advantage if the resources are scarce in other parts of the wider market. Kopalle and Neslin (2003) test the category expandability effect at an industry-subgroup level using combined performances of all major airlines. They find continuing benefits of frequent-flier programs for the major airlines as a whole even when multiple programs were offered, which they attribute to the ability of these programs to defend major airlines against new low-cost entrants. In this research, we extend their study to examine the effect of category expandability on individual loyalty programs. We further argue that though category expandability was originally suggested as a market-level characteristic, its effect also exists at the individual level. Because of individual preferences (e.g., fear of flying) and purchase habits (e.g., travelling very little), the expandability of a product category may differ among consumers. For consumers with high category expandability, loyalty programs can draw demand from other categories. Consequently, enrolling in multiple programs may not necessarily erase the influence of an individual program on these consumers. In contrast, for consumers whose market boundaries are more rigid, the saturation effect should be more pronounced as multiple programs compete for a fixed demand. Thus:

> H_3: The market saturation effect specified in H_2 is more pronounced for consumers with low category expandability than for consumers with high category expandability.

Data

To collect the data for this study, we conducted an online survey of a convenience sample of 166 consumers. The sample comprised 48.8% men and 51.2% women. The age of the respondents varied between 19 and 54 years, with an average age of 24.35 years. The median household income was between $50,000 and $74,999. These consumers travelled an average of 3.32 times per year. For the mode of air travel, the average frequency was 1.36 times per year. A majority (82.6%) of the respondents said that they travel mainly for personal reasons. An equal number of the other consumers reported that they mainly travel either for business reasons or for a mixture of personal and business reasons. To avoid overwhelming consumers, our survey focused on the top 11 U.S. airlines, all of which offered a loyalty program. The respondents reported their frequency of flying with each of these airlines in the past year and their membership in the airlines' loyalty programs. For each airline, we also measured the consumers' attitudinal loyalty using Chauduri and Holbrook's (2001) two-item scale. The scale asked consumers how committed they are to an airline and the extent to which they are willing to pay more for flying with an airline over other airlines. We measured these responses on eight-point semantic differential scales and averaged the responses to the two items to form an overall attitudinal loyalty score (α 5 .75). We operationalised category expandability by measuring consumers' purchase frequency in the travel "super category" (including air and other modes of travel) in a typical year. The rationale is that consumers who have higher demand for a super category (i.e., travel) offer more room for the subcategories (i.e., air travel) within the super category to expand. In other words, for frequent travellers, there are more opportunities for airlines to expand into alternative travel options than for consumers who travel infrequently and thus have a more rigid demand for air travel. Our approach is consistent with prior research that shows increased portfolio size under higher category purchase rates (Colombo and Jiang 2002). We used a median split to convert each consumer's travel frequency into an expandability indicator.

The Model

To avoid the confounding influences on sales that we discussed previously, in this study, we used purchase frequency as the dependent variable. We show the model in Equation 3:

(3) $\text{Frequency}_{ij}\ 5\ \alpha_0\ 1\ \alpha_1\text{LP}_{ij}\ 1\ \alpha_2\text{LP}_{ij}\ 3\ \text{MS}_j\ 1\ \alpha_3\text{LP}_{ij}\ 3\ \text{Sati}\ 1\ \alpha_4\text{LP}_{ij}\ 3\ \text{Expandability}_i\ 1\ \alpha_5\text{Loyalty}_{ij}\ 1\ e_{ij},$

where

Frequency_{ij} 5 the number of times consumer i flew with airline j in the past year,

LP_{ij} 5 1 if consumer i belongs to airline j's loyalty program and 0 if not,

MS_j 5 airline j's market share during the reference period of the survey (taken from Study 1 data),

Sat_i 5 total number of frequent-flier programs consumer i is enrolled in (i.e., program saturation),

Expandability_i 5 1 if category expandability is high for consumer i and 0 if low, and

Loyalty_{ij} 5 consumer i's self-reported attitudinal loyalty to airline j.

To accommodate systematic variations within consumers and within airlines, we adopted an approach similar to panel regression by specifying the residual structure as in Equation 4:

(4) $e_{ij}\ 5\ v_i\ 1\ u_j\ 1\omega_{ij}$

where v_i represents the systematic effect for consumer i, u_j is the systematic effect associated with airline j, and ω_{ij} represents random error. The coefficient for LP_{ij} shows the main effect of a loyalty program. Similar to Study 1, the $\text{LP}_{ij}\ 3\ \text{MS}_j$ interaction represents the size advantage we predicted in H_1, and we expect its coefficient to be positive. We capture the saturation effect by the interaction between LP_{ij} and Sat_i and the three-way interaction among LP_{ij}, Sat_i, and Expandability_i. The coefficient for the $\text{LP}_{ij}\ 3\ \text{Sat}_i$ term, $\square_3$, symbolizes the saturation effect when category expandability is low (i.e., $\text{Expandability}_i\ 5\ 0$). We expect it to be negative as a result of the market saturation effect (H_2). The three-way interaction represents the difference in saturation effects under high versus low category expandability (i.e., $\text{Expandability}_i\ 5\ 1$). If high category expandability truly mitigates the saturation effect, as we predicted in H_3, the coefficient for this interaction should be positive.

Similar to Study 1, the model specified in Equation 3 may have an endogeneity problem because a consumer who travels more often with an airline may be more likely to join that airline's loyalty program. To address this self-selection issue, we again estimated the model using two-stage least squares, as in Study 1. Consumers' relationship proneness served as an instrumental variable, which we measured with two items: "I tend to buy things from the same companies", and "I prefer to buy from a company that knows me personally." We averaged these two items to form the relationship proneness score (RelationPronei). In the first stage, we estimated Equation 5, which included the instrumental variable and all variables from the main model. We then used the predicted value for LP_{ij} in the second-stage regression:

(5) $\text{LP}_{ij}\ 5\ \square_0\ 1\ \square_1\ \text{RelationProne}_i\ 1\ \square_2\ \text{MS}_j\ 1\ \square_3\ \text{Sat}_i\ 1\ \square_4\ \text{Expandibility}_i\ 1\ \square_5\ \text{Loyalty}_{ij}\ 1\ \xi_{ij}$

Results

Table 2 provides the estimates from both stages of regression. The R-square for the first-stage model was .08. The results show a negative effect of relationship proneness on loyalty program membership (□$_1$5 –.06, p 5 .01). We expected this finding because consumers who have the tendency to develop deeper relationships with firms are less likely to shop among many loyalty programs or to rely solely on loyalty programs as incentives for doing business with a firm. Further confirming the suitability of our choice of instrumental variable, relationship proneness had an insignificant correlation (r 5 –.02) with the residuals from the original model when we did not account for endogeneity (Wooldridge 2002). Not surprisingly, our data also showed a significant effect of attitudinal loyalty on loyalty program membership (□$_5$5 .15, $p < .001$). The second-stage model accounted for 12.17% of the variance in the dependent variable (for the correlation matrix, see Table 1, Panel B). The results showed that membership in an airline's loyalty program contributed positively to the frequency of flying with the airline (□$_1$5 .17, $p < .001$). Although this differs from the insignificant loyalty program main effect we found in Study 1, recall that this survey was based on the 11 largest airlines. Therefore, from the market share advantage perspective, this subset of airlines is more likely to benefit from loyalty programs. In support of this market share hypothesis (H_1), our analysis revealed a positive coefficient for the LP_{ij} 3 MS_j interaction term (□$_2$5.08, $p < .001$). Consistent with H_2, a significant, negative effect of the LP_{ij} 3 Sat_i interaction emerged (□$_3$ 5 –.16, p 5 .002), suggesting that market saturation dilutes the impact of individual loyalty programs when category expandability is low. Furthermore, the LP_{ij} 3 Sat_i 3 $Expandability_i$ term was significant and positive (□$_4$ 5 .11, p 5 .002). A test of the combined coefficients for the two interaction terms after we adjusted for mean centring revealed an insignificant overall effect (F 5 1.33, p 5 .25) on high-category-expandability consumers. Combined with the insignificant effect of market saturation from Study 1, our results indicate that there may be a significant portion of consumers with high category expandability in the air travel market and that the demand for air travel is relatively flexible. Overall, H_3 was supported. Our results provide further proof to Kopalle and Neslin's (2003) proposition that loyalty programs are more viable in expandable markets. Beyond a possible "me-too" motivation, loyalty programs are appealing to airlines even under high saturation because they enable airlines to compete effectively with other substitutes (including other modes of transportation and the choice of not travelling at all).

As we would expect, the coefficient for the attitudinal loyalty variable was significant and positive (□$_5$5 .16, $p < .001$), suggesting a positive effect of brand loyalty on consumer patronage behaviour. When we eliminated the loyalty variable from the model, the coefficient for the LP_{ij} variable increased, suggesting that the effects of a loyalty program are partially mediated by enhanced attitudinal loyalty toward the offering firm (Baron and Kenny 1986). However, that the presence of attitudinal loyalty in the model did not completely eliminate the effect of loyalty program membership suggests that a loyalty program also directly affects consumer behaviour beyond attitudinal loyalty, possibly in the form of pure economic incentives.

Effect Size

To understand the magnitude of loyalty program effects, we used an approach similar to that of Leenheer and colleagues (2007), comparing a consumer's frequency of flying with an airline with a simulated situation in which the consumer does not belong to the airline's frequent-flier program. Across all consumers, the frequency lift as a result of membership in a loyalty program was 4.24%. The size of the frequency lift varied across airlines, from a negligible .03% for Frontier Airlines (the smallest in the group) to 11.57% for Southwest Airlines. Overall, the magnitude of frequency lift attributable to loyalty programs traced closely to the rankings of the airlines based on their market share. To observe how much saturation could dilute the frequency gain induced by an individual loyalty program, we simulated the scenario in which we increased each consumer's total loyalty program count by one. Across all consumers, this additional program reduced the average frequency lift from loyalty programs to 2.3%. When we split the sample by category expandability, the frequency lift for the low-expandability group reduced to only 1.08%, whereas the frequency lift for the high-expandability group remained almost unchanged at 3.80%.

DISCUSSION

Conclusions

Loyalty programs are an important customer relationship management tool. However, the proliferation of such programs in the marketplace has spawned intense competition among rival programs. In contrast to this market reality, existing studies of loyalty programs have often considered a single program in isolation and have ignored the effects of competition on program performance. Addressing this gap in the literature, we draw from the resource-based view of the firm and identify competitive factors that affect the success of loyalty programs. We argue that as a competitive firm resource, a loyalty program needs other complementary resources to realize its value fully and to create competitive advantage. In support of this view, our two studies showed that loyalty programs did not always lead to beneficial outcomes for the offering firm and that only high-share firms experienced sales lifts from their loyalty programs. Because high-share firms tend to possess complementary product and customer resources, they are more likely to gain from their loyalty programs than firms with a smaller market share. Our research also reveals that crowding the marketplace with loyalty programs can diminish the return of an individual program. Although this finding may not be particularly surprising, we also find that this saturation effect is contingent on the expandability of the product category. Market saturation has a negative effect under low category expandability, but its effect disappears under high category expandability. When the products from one industry can be extended to meet the demands in related industries, the competitive landscape shifts to include not only competitors within an industry but also firms in those related industries. From this broader perspective, although the imitation of loyalty programs among competitors makes it a common resource within the focal industry, such resources can still derive competitive advantage within the broader market if competitors in alternative categories do not yet possess such resources. Under this situation, saturation becomes less of a threat to the success of each individual program in the focal industry.

Because of the airline industry's relatively high category expandability, the overall effect of market saturation becomes insignificant. Our results can explain some of the mixed findings in the loyalty program literature. Although existing research does not offer enough information for us to assess market saturation, in general, the firm size and category expandability explanations we advanced in this study are consistent with prior findings. For example, the two firms (Kmart and Shell) found to have benefited from the Fly Buys program in Sharp and Sharp (1997) both had the leading share in their respective product category. As another example, in Leenheer and colleagues' (2007) study of seven loyalty programs in the grocery retail industry, in general, the more effective programs were offered by top firms in terms of market share. Although two low-share retailers also experienced a large increase from having a loyalty program, they offered either a significantly higher reward ratio (4%) or a higher discount rate (9%) than their rivals, thus possibly overcoming their disadvantageous positions caused by low market share. Similarly, in Meyer-Waarden and Benavent's (2006) study of six grocery stores, the three stores that benefited from their loyalty programs all belonged to the top two chains in the area. Our category expandability finding also explains the success of some loyalty programs documented in prior research. For example, Drèze and Hoch (1998) examine a category-specific loyalty program within a supermarket chain. The program was targeted at health and beauty care products, which the researchers argued to be an underdeveloped area in the supermarket industry and on which the industry was losing market share to retailers outside the industry. This may have contributed to the tremendous success of the program by defending the supermarket and drawing demand from industry outsiders.

In another study, Lewis (2004) finds that an online retailer's loyalty program increased consumers' transaction size. As a fast-growing medium, online retailing represents a highly expandable category that is quickly displacing traditional channels. Loyalty programs offered in this new channel make it even more appealing to consumers and encourage them to buy more from this channel rather than from traditional stores.

Managerial Implications

When a strategy is proved to be successful by some firms, it is easy for other firms to be tempted to follow the fad and copy the strategy in their own situation. Our study cautions against an urge to launch a loyalty program simply because every other competitor is doing so. Rather, a firm that is pondering the launch of such a program in an already saturated market should carefully consider the flexibility of market demand and whether important resources exist to complement such a program. If market demand is flexible, either because demand can be stolen from related industries or because additional demand can be stimulated from consumers (Nunes and Drèze 2006), saturation will be less of an issue, and loyalty programs can still be a viable strategy for expanding the firm's business. In contrast, in a rigid market in which firms compete for a limited, fixed set of demand, offering more loyalty programs functions at best as a defence mechanism (Sharp and Sharp 1997), and their incremental contribution to the bottom line will be limited. The end result will be a zero-sum game for the industry. For larger firms, such a defensive move can still be valid because it may be more important or realistic for such firms to maintain a dominant market share rather than trying to increase sales.

However, when the focus is more on growth, such as in the case of a relatively new brand, rather than launching a loyalty program, the firm will be better off examining its existing resources or identifying other resources it can acquire at a relative cost advantage. This exercise may reveal resources and capabilities, such as superior customer service, that can add value to the firm's offerings and strengthen its relationship with customers. Because these resources may be less imitable than loyalty programs, they can offer the firm long-term competitive advantage. This strategic alternative is especially relevant to small players in the market because our analysis shows that these players lack the complementary resources to benefit truly from a loyalty program. Therefore, unless smaller players have a long lead time ahead of their larger rivals to gain a large program base (an unlikely scenario), such a program may not be a wise move.

A pragmatic matter in this strategic assessment of whether to launch a loyalty program is to determine how expandable the product category really is. In this research, we used consumers' overall travel frequency as a proxy for individual demand expandability. For industry-level assessments, however, this measure will have limited utility. Instead, firms can derive demand elasticity from consumer purchase data. Industry growth rate may also be helpful in this assessment. Alternatively, primary research can be conducted with consumers to understand the substitutability of various product categories. For a firm that already operates a loyalty program, our research suggests that it is necessary to think beyond the design and management of the program itself. The success of a loyalty program depends on other aspects of the firm as well as market dynamics. Loyalty programs as a standalone mechanism do not necessarily bring competitive advantage but rather need a set of other resources to realize their value. To prevent a loyalty program from becoming a mundane resource, a firm should focus on building complementary resources (either internally or through external acquisition) to increase the appeal of its program. For example, technological and analytical capabilities can be combined with information gained from loyalty programs to enable one-to-one marketing to customers.

The essential idea is to create a unique combination of resources that maximize the appeal of a loyalty program beyond economic incentives. When this occurs, although competitors can copy the loyalty program itself, they will lack the complementary resources to make the program equally competitive. For small firms that already have a loyalty program, their disadvantageous position means that they may need to try special tactics, such as increasing reward ratio and offering more reward redemption options, to remain competitive with their loyalty program offerings. Alternatively, they could seek less-size-sensitive resources (e.g., niche product positioning) that may enhance the value of their loyalty programs.

Limitations and Research Implications

We recognize a few limitations in our research that need to be addressed in future studies. First, our research covers only a small portion of the loyalty program framework we proposed. Many of the factors in the framework remain to be examined in further research. At the market level, for example, in addition to category expandability, factors such as the degree of market or customer wallet fragmentation and the presence of switching barriers (e.g., contractual versus non-contractual relationships) may influence the effectiveness of loyalty programs. Furthermore, the three sets of factors in Figure 1 are likely to interact with one another, which we did not consider in the current research. These questions are unlikely to be answered by a single study. Rather, a systematic research program is needed to identify the effects of these factors as well as their interactions, similar to the types of work described by Nunes and Drèze (2006).

Second, the context of our research may limit its generalizability to other industries. In particular, airlines' loyalty programs feature similar designs (e.g., no participation fee, similar reward requirements), and airlines themselves also offer similar services with low switching barriers. As a result, the market saturation effect we found in this study may be more applicable to industries with similar structures, such as hotel and credit card sectors. In an industry in which competitors and their loyalty programs are highly differentiated and switching barriers between programs are high, the saturation effect is likely to be lower than the current findings. The same applies to industries in which firm– customer relationships are usually contractual, such as in cell phone services. However, we expect category expandability to continue to play a role in moderating the effect of program saturation because it is a cross-category factor representing the flexibility in demand that enables firms from one product category to compete effectively with other product categories. The market share effect is also likely to hold because the need for complementary resources applies across industries. However, the magnitude of the effect may be smaller than our findings from Study 1. An important phenomenon in the airline industry is the sales of frequent flier miles to third-party vendors, such as retailers, so that consumers can earn frequent-flier miles with their retail purchases (Nunes and Drèze 2006). Because those vendors are more likely to want to associate with a larger airline to attract customers, the market share advantage found in Study 1 may have been further boosted by these partnership choices. In an industry in which such partnerships do not exist, the market share advantage may be smaller. Further research using data from multiple industries will help generalize the effects studied here and understand how they may interact with industry structures.

Third, we examined the effects of loyalty programs without explicitly identifying the causes of some effects. The increases in airline sales and consumer purchase frequencies we found here could be attributed to various reasons. A classic explanation would be that the rewards motivated consumers to spend more because of the economic and psychological benefits we discussed previously. Alternatively, the increase may also be due to more effective marketing as a result of consumer intelligence gained through loyalty programs. Additional research is needed to examine how loyalty programs affect consumers' decision making as well as firms' business processes. Finally, the aforementioned partnerships between firms from different industries in their loyalty program initiatives have gained popularity in recent years. In the airline industry, selling frequent-flier miles to such partners has even become a major revenue source for airlines (Ferguson and Hlavinka 2007). However, the effectiveness of this practice is still unestablished. Although the expansion of point accumulation and redemption choices through such partnerships may increase the appeal of a loyalty program and bring immediate financial gains, there may be negative consequences in the long run, such as diversion from the main purpose of the program (i.e., to increase consumer loyalty toward the focal firm) and contamination or dilution of brand images between the partnering firms. These need to be evaluated in further research.

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Acknowledgement: Reprinted with permission from the Journal of Marketing published by the American Marketing Association, Liu & Yang, January 2009 Volume 73 and 91 – 108.

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WEBSITE REVIEW

Keywords: fdkfjlfjlajf;a

As this journal has a marketing focus, it was dedded to review a global marketing portal, particularly one that provides useful information for users with an academic perspective. An online portal can be defined as a "Web-based application that acts as a gateway between users and a range of different ... services."* One such marketing portal that has proved very useful to the author in the past is MarketingProfs, accessible at http://www.marketingprofs.com. This portal is well presented, easy to navigate, up-to-date, and contains useful information for any marketing professional, academic or scholar. This is a useful website for anyone that teaches, practices or is busy studying marketing.

What is *MarketingProfs?* They describe themselves as follows:

> *"It's a rich and trusted resource that offers actionable know-how to help you market your products and services both smarter and better. Entrepreneurs, small-business owners and marketers in the world's largest corporations make up its 364 000 subscribers, making it the largest in its category. Through the MarketingProfs Web site, newsletters, conferences, seminars, forums and so on ... we help you navigate your way to market your business and keep you informed of the newest and best tools."*

Ignoring the 'marketing spin', their claims are supported by browsing through what the portal offers. On *MarketingProfs,* one can find marketing resources covering more than 20 specific marketing topics such as brand management, customer behaviour, market research, pricing, strategy, segmentation, sales, public relations, and advertising. Under each specific topic, one can find how-to articles, case studies, online seminars, as well as guides and reports. The site also has a research section highlighting recent marketing research surveys and reports. Examples include *B2B Lead Generation: 2009 Marketing ROI"*, *"The State of Social Media Marketing"*, and *"Email Marketing Factbook"*. These reports can be purchased from their online store. *MarketingProfs* also has access to information on marketing conferences and events, marketing videos, a know-how exchange forum, daily information posts and RSS (Really Simple Syndication) feeds.

MarketingProfs offers both free basic membership and 'pro' (pay-for) membership. Pay-for members receive a range of additional services not available to basic members. Irrespective of whether one chooses basic or pro membership, the portal remains a useful source for the marketing academic.

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* Akram, A., Chohan, D. Wang, X.D., Yang, X. and Allan, R. (2005). A service oriented architechture for portals using portlets. Procedure. UK e-Science All Hands Meeting (AHM) Conference, September 19–22, Nottingham, United Kingdom